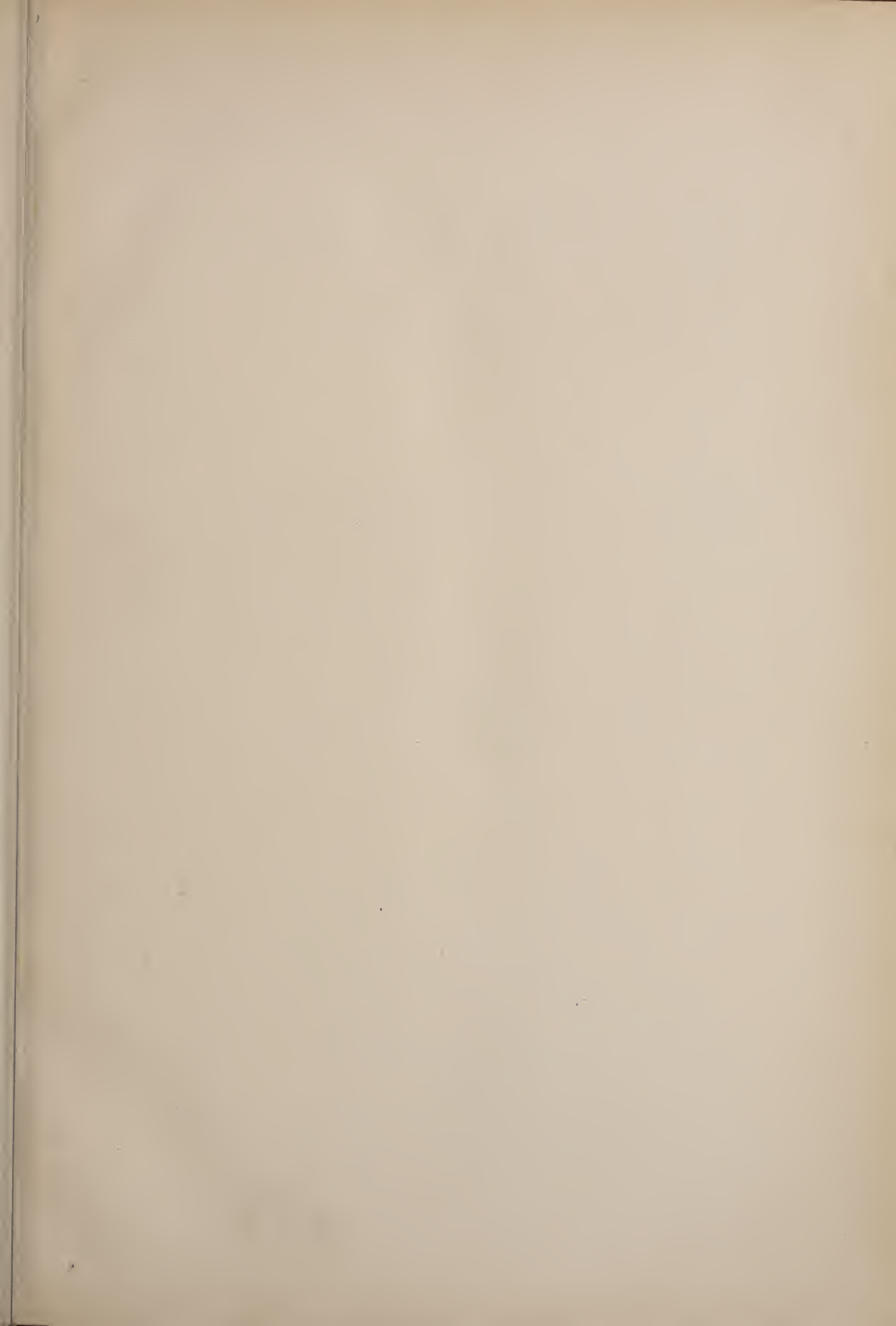


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J. F. Edwards, M.D.

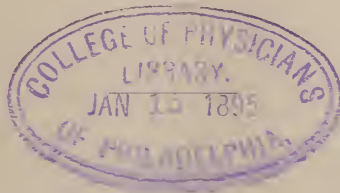


THE
Annals of Hygiene
A JOURNAL OF HEALTH.

THIS JOURNAL PUBLISHES THE PROCEEDINGS AND PAPERS OF
THE STATE BOARD OF HEALTH OF PENNSYLVANIA.

EDITED BY
JOSEPH F. EDWARDS, A.M., M.D.

VOLUME IX.,
JANUARY TO DECEMBER, 1894.



PHILADELPHIA :
UNIVERSITY OF PENNSYLVANIA PRESS,
1894.

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1894.

PRINTED BY J. B. LIPPINCOTT COMPANY, PHILADELPHIA, U. S. A.

THE ANNALS OF HYGIENE

PHILADELPHIA
VOL. IX NO. 1

COMMUNICATIONS.

Prevention of Disease.¹

BY J. G. PORTEOUS, M.D.,
Poughkeepsie, N. Y.



HE often reiterated injunction in regard to the treatment of disease, "remove the cause," naturally brings the suggestion, why not remove the cause first, and thus prevent the disease.

From the earliest times, the use of the charm and amulet shows the desire to prevent disease and death, and perhaps the case of Achilles shows how small an oversight may admit them; and even now, it is often easier to secure the use of an infinitesimal dose of belladonna to prevent scarlet fever, or the wearing of a camphor-bag charm for any contagious disease, than to secure the use of common sense and intelligent precaution.

How many of you have ever convinced a woman, or, for that matter, a man, that their wearing narrow shoes had anything to do with producing corns, or that they were not more comfortable than broad ones. They may admit that their neighbor suffers from a tight shoe, or dress, but not they, and it is the same with almost every community in regard to their water supply, or their filthy streets.

The study of the cause of disease is one of the most fascinat-

¹ Read before the New York State Medical Association, October 10, 1893.

2—The Annals of Hygiene

ing, and naturally precedes the prevention, but so much has been said and written on the subject, especially since the discoveries of Pasteur, Koch, Shakespeare, and a host of other investigators in the same line, I will confine this brief paper to the every day application, instead of the theory or history of the matter.

It is only by the persistent, constant and intelligent application of these great truths by the mass of the medical profession that the greatest good can accrue to mankind. While very few deny the immense benefit derived from and shown by the practical stamping out of small-pox, the intelligent control of cholera and typhoid fever, the prevention of the dreaded group of diseases, septicæmia, hospital gangrene and traumatic erysipelas, which formerly followed the knife of even the most brilliant surgeon, and are now so seldom heard of, yet it must be admitted that in some ways they have been indirectly responsible for a certain amount of harm. The feeling of immunity from immediate death has led to many an unnecessary operation, and, I believe, the unsexing of many a poor woman; the after results have not always been so carefully studied.

The discoveries and experiments of Pasteur and Koch have been drawn on; and the shadow of their methods, added to the glamour of mystery, used to impose on a credulous public and have given a certain class of physicians and self-styled philanthropists, a chance to cloak their greed for dollars under the pretense of benefitting suffering humanity.

The celebrated Dr. Hart says of this class of practitioners: "As to the rule which prohibits the medical man possessing or profiting by any secret remedy; not only is this an offence against professional morality, but it is a source of great public danger as well.

"From traditional law, and in virtue of the mission of the physician or priest, both are alike, the common birthright of humanity, and any man who, for profit, keeps as a secret a new treatment, or a new doctrine, is a traitor, not only to his profession, but to all humanity. Moreover, no respectable physician should advertise; that is a method of a quack."

And "there is no distinction between the quacks who have medical degrees and the quacks who have not." There are perhaps, a few men in the profession, even in this country, who would do well to ponder the words of the great English editor, when they see their names flaunted in the daily press, or posted

on fences and telegraph poles in connection with the wonderful cures, or as medical directors of these secret institutions, sanitariums and patent treatments. But all this makes it more an obligation on the legitimate, honest profession, of which we are all proud, to carry out to practical conclusions the discoveries of our great leaders, in a way which shall be of the greatest good to mankind, and in a way to show the world that we have higher aims and interests than the mere gathering of shekels. The extensive prevalence of typhoid fever (properly considered a preventable disease) is due more to the indifference and parsimony of municipalities and local boards of health, than to a lack of effort among physicians. When a community, either town or city, will persist in drinking their own or others' sewage, especially that containing human excrement, and tolerating filthy streets and premises, they must expect diarrhœa and this form of fever, and they will not be done away with while dollars and cents are valued above life and health. And to aid in preventing the spread of diphtheria, scarlet fever, typhoid fever and tuberculosis, the milk supply should be supervised by the State so that the dairies, stables and cows may be regularly inspected as to health of the cattle, and cleanliness of stables, utensils and methods of handling the milk, and this cannot be properly done by local boards of health. The State inspectors now have power to examine and condemn cattle and milk, and in certain cases, impose or collect fines, but it is done so seldom that it loses half its force, and there is little doubt that disease is at times, conveyed through this important article of food. The amount of filth in milk as delivered by farmers to condensed milk factories is disgusting, but the process of manufacturing, and the admirable and scrupulous cleanliness in every department of these factories makes it much less dangerous than milk containing similar filth and not subject to cleansing and heating.

I have seen men while milking deliberately dip their fingers in the milk and then continue the milking, practically washing both their hands and the cow's teats in the milk which some one was expected to drink.

Little can be done by the State to prevent syphilitic diseases in the face of present public opinion and a large class of the daily press, who wish this matter ignored and raise their hands and voices in holy horror when State control is mentioned, though the same paper may have columns of advertisements for cures which

4—The Annals of Hygiene

do not cure, although couched in the seductive terms of "renewing manly vigor," etc., but they bring dollars, and the disease drags along its weary way, and leave its trail of ruined men and women, and their tainted offspring.

The prevention the profession alone can offer is slight, as the harm is generally done before it comes under the doctor's observation, and his advice for prevention given without authority has little weight.

Perhaps, in no single disease is there at present so broad a field for prevention and which calls so decidedly for constant care and untiring vigilance among physicians as tuberculosis, which is credited with destroying more lives than any single disease; it is undoubtedly infectious and like cholera, only communicated by the introduction of a specific germ, "bacillus tuberculosis" (discovered by Koch, and the discovery publicly announced March 24, 1892), into the system of a healthy person principally in three ways:

- (1) Through the stomach.
- (2) Through the lungs.
- (3) Through an open wound.

(I quote from a tract issued by the Pennsylvania Society for the Prevention of Tuberculosis.)

(1) *Through the Stomach*.—"When people eat imperfectly cooked tuberculous meat, drink milk from badly diseased tubercular cows, eat food out of the same dishes or with the same eating utensils as consumptives, eat food with unwashed hands after having been in contact with tubercular patients, eat food that has been handled by persons suffering from tuberculosis, put coins, articles of toilet, or other small objects, that have been handled by persons suffering from tuberculosis, into the mouth, use musical instruments or implements which, when in use are placed to the lips or in the mouth, and which have been used by consumptives, kiss upon the lips persons suffering from consumption, swallow tubercular pus in the form of dust which has accumulated in the throat or fauces during the act of respiration."

(2) *Through the Lungs*.—"When people inhale dried-up tubercular pus in the form of dust."

(3) *Through Wounds*.—"When people get tubercular pus into an open cut, or an abrasion of the skin."

There is a chance that the exposing of dressed meat on the side-walks may be a source of danger, as it could easily be infected

by the filthy dust from the street, and possibly by the industrious fly who divides his time impartially between the gutter and the meat.

Thousands of dollars have been spent, and very properly, in the last two years to prevent cholera in this country, and with most gratifying results, while practically nothing to prevent tuberculosis, which is credited with more than 100,000 deaths each year in the United States, and according to Dr. Farr, for every death there are, on an average, three years of sickness.

Dr. De Lancey Rochester, of Buffalo, distributes a very practical paper of instructions to his patients, entitled "Directions to Prevent the Spread of Consumption," and the Pennsylvania Society for the Prevention of Tuberculosis issues a couple of tracts with quite full directions to the patients and those who come in contact with them.

For some time I have been distributing the following card among patients:

TO PREVENT CONSUMPTION.

Remember that it is an infectious disease, communicated principally by the matter coughed up and spit out.

The patient should spit in a cup or wide-mouthed bottle, containing a little carbolic acid and water, and frequently washed with hot water. Use carbolic acid and water in commode. Never spit on the street, or floor of house, or cars.

Sleep alone, and, if possible, in an airy and sunny room. Have separate bed and table linen; these should be boiled before washing. Use individual table utensils, washed separately.

Wash the mouth twice daily with soda and water. Do not kiss any one.

Those who are well should remember that it is an infectious disease, communicated principally by swallowing the germs; by inhaling them, or having them introduced through a wound. Therefore, do not buy or use food that has been handled by a consumptive.

Do not share the food or drink of a consumptive.

Do not sleep with a consumptive.

Do not put coins or small articles in your mouth that may have been handled by a consumptive.

Do not kiss any one on the lips if they have a cough.

Do not take food without first washing your hands.

6—The Annals of Hygiene

It is brief and more easily kept in view than verbal instructions; it is not as good or full in description or instructions as either of the others, but answers for a beginning, and now that I know of the tracts I give them in addition, especially where there is a consumptive in the house. The injunction to burn all the sputa of a consumptive is good, but was not put in this card because it was found impossible to have it followed to any extent, especially among the poor and in the summer when there is not much fire used. In most cases the sputa finds its way to the closet, and into the sewers, where there are sewers, and probably adds somewhat to the danger in cases where the sewage enters the water-supply, but it is only one more abomination added to the sufficiently dangerous mixture, and should be another reason for not using it:

Dr. A. Gihon, Medical Director United States Navy, in his opening address to the Section of Hygiene in the recent Pan-American Medical Congress, gave a graphic description of his experience on cars and steamers while traveling with consumptives and the dangers of ordinary travelers from this cause; yet it should be remembered that most of these consumptives crossing and re-crossing the continent by thousands, are usually doing so by direction of their medical attendants, and generally without the slightest instruction as to protecting their fellow travelers.

The Society for the Prevention of Tuberculosis, says: "While science does not yet offer a certain cure, it has demonstrated that the disease can be avoided and prevented. It is now believed that tuberculosis can be exterminated among civilized people." This, however, to be fulfilled, will require a vast amount of constant, faithful (and pecuniarily unrewarded) work by the entire brotherhood of the great profession to which we belong.

Cheap Tooth-brushes Dangerous.

An operation for appendicitis upon a patient living in this State revealed the fact that this disorder was due to the presence of tooth-brush bristles. "Cheap tooth-brushes," remarked the Albany surgeon who had charge of the case, "are responsible for many obscure throat, stomach and intestinal ailments. The bristles are only glued on and come off by the half-dozen when wet and brought in contact with the teeth."—*American Druggist*.

Sewage Disposal.

BY JOHN M. DAVIES, M.D.,

President of Board of Health, Warren, Pa.



HAUTAUQUA is a very beautiful and growing place of summer resort, owned by the Chautauqua Assembly and University, which has a world-wide reputation for its religious and educational work.

It is situated on Chautauqua Lake, the highest navigable water on the Atlantic slope, being 726 feet higher than Lake Erie. It is three miles from Maysville and about twenty-four from Jamestown, N. Y.

There are about 600 cottages on the grounds, besides a large hotel. During the months of July and August there is generally an attendance of from 10,000 to 12,000. This year the attendance has been about half that number.

The perplexing problem of disposing of the sewage from this large number of visitors has at length been solved. A visit by the writer to the sewage disposal works was exceedingly gratifying.

There are seven miles of sewer pipe, the mains being twenty inches and the laterals eight inches in diameter. The sewage disposal works consist of a machine house, a wooden building forty by forty feet, and four masonry settling tanks. The works are operated by precipitation. The plan is known as the Coventry system from having been first in operation in Coventry, England. That at Chautauqua is an improvement on the Coventry plan, and was designed by Mr. William B. Landreth, C.E., of Jamestown, N. Y.

The machine house contains the engine and boiler, two large wooden vats for mixing the chemicals, a brick mixing well with centrifugal pump, a sludge well, hydraulic pressure pump and a sixty-cell "Bennot" press, fitted with pressure gauge, rubber gaskets, etc.

The sewage enters the building on the west side, the brick underpinning forming one side of the brick channel. A sloping iron screen, three-quarters of an inch mesh, catches the floating waste, which is raked off and burned in the furnace of the boiler.

8—The Annals of Hygiene

The large wooden mixing vats, with a capacity of 860 gallons, are fitted with revolving arms. The first contains a milk of lime solution which is mixed with the sewage as it passes through the brick channel. The second tank holds a solution of alum and sulphate of iron which is applied to the sewage as it passes through the channel.

The sewage then enters a brick mixing well where it is caught up by a vertical centrifugal pump and discharged through a four-inch pipe into the main channel to the tanks. The chemicals are thus thoroughly mixed with the sewage.

Outside, to the east of the machine house, are four tanks, having a capacity of 25,000 gallons each, covering a space of sixty-five feet square. They are built of solid masonry, laid throughout in American cement mortar, and lined on the inside with one course of brick laid in Portland cement mortar. The two end walls are five feet across on the bottom and four feet on the top. The side walls are three feet on the bottom and two feet wide on top. The partition walls are two inches wider.

A brick channel two feet wide on the west wall carries the sewage into any of the four tanks through weirs six feet long. A channel of similar dimensions in the east wall discharges the effluent over steps into a fifteen-inch sewer pipe emptying into the lake.

The tops of the walls are covered with sawed sandstone coping three inches thick, bedded in Portland cement mortar.

The bottom of the tanks is built of concrete composed of two parts sand, one part cement, and three parts broken stone or gravel twelve inches thick. The bottoms of the tanks slope from the sides with a fall of one in thirty to a sludge channel two feet wide in the middle of the tank, which has fall of two and a half feet in fifty-six to the sludge basin.

In each tank is an eight-inch floating outlet pipe, made of galvanized iron, eight feet long, which is suspended just under the surface of the water by a galvanized iron float. The floating outlet pipe is connected with the fifteen-inch effluent drain under the end wall.

To clean any one of the tanks it is shut off by a flash board, and when the matter in suspension has precipitated the valve on the floating outlet is opened and the effluent drawn off down to the sludge. The effluent valve is then closed, the sludge valve at the other end of the tanks opened and the sludge passes into

the sludge well through an eight-inch vitrified sewer pipe. The sludge well is built of brick. It is eight feet in diameter, sixteen feet deep, with twelve-inch walls, fitted with a cast-iron cover, flush with the floor of the machine house.

After all the sludge from the tank is drawn into the well it is pumped with a centrifugal pump into a tank on the floor and from this tank the sludge is pumped into the press with a hydraulic pressure pump, fitted with a double set of plungers, and rubber valves resting on a cast-iron seat.

The sludge is pumped into the press until the gauge shows a pressure of sixty pounds and the water ceases to flow out of the drip cocks. A car is run under the press, which is opened and the sludge removed out of the building. The cakes are thirty inches in diameter, and one and a half inches thick.

Experiments have shown that the continuous plan of operation, allowing the sewage to flow from one tank into the other, the effluent flowing from the last tank down over the steps into the effluent pipe to the lake was found to give the best results.

By careful experiment the amount of chemicals used to produce a good effluent was found to be eighteen grains of lime, six grains of alum and one-fourth grain of copperas per gallon of sewage.

A sample of the effluent was sent to Professor Maurice Perkins, member of the New York State Board of Health, Professor of Chemistry in Union College, Schenectady, N. Y., for analysis. In his report he says: "I think this is quite a successful treatment of sewage. Most all of the albuminoid ammonia seems to have been precipitated, for originally I would expect to find at least ten times as much. I should have no hesitation in allowing an effluent like this to flow into a large body of water. Would have no fear as to the fish."

A more recent analysis would doubtless show still better results.

The entire cost of running the plant averages \$10 per day.

This Chautauqua sewage disposal experiment is an object lesson in sanitary science for which our country is indebted to the liberal and progressive management of the Chautauqua Assembly and University.

Some Forms of Food Adulteration.¹



SOME years ago general recognition of the growing evil of food adulteration in this country led to the preparation of an enactment, which later was made a law by several States, providing among other things, "that no person shall manufacture, have, offer for sale, or sell any article of foods or drugs which is adulterated within the meaning of the act." It further provided that "an article shall be deemed to be adulterated, within the meaning of this act, in the case of food and drink, if it be colored, or coated, or polished, or powdered, whereby damage is concealed, or it is made to appear better than it really is, or of greater value; or, if it contain any added poisonous ingredient, or any ingredient which may render such article injurious to the health of a person consuming it." Obviously, legislation by itself will avail little to remedy any evil of this character. The public mind needs to be aroused to a general recognition of the possible dangers attending the common adulteration of articles of food, and the adulterator made to feel that he is liable to detection and punishment, either directly or indirectly. In no way can this be better accomplished than by the work of properly authorized inspectors and public analysts, whose duty it should be to keep careful watch over the purity and wholesome character of the food of the people, so that the poor man may have a better chance of obtaining full value of his hard-earned money, and his more opulent neighbor the opportunity of purchasing the dietetic luxuries he may desire without fear of danger to himself and family. The State should manifest as much interest in the health and food of the people as in the health and food of the domestic animals; yet it is a conspicuous fact that in this country hundreds of thousands of dollars are spent each year by the general government in sustaining the agricultural experiment stations, where the food of the domestic animals is carefully looked after, while very little attention is given to the character of the food consumed by the people. The Department of Agriculture, however, in the division of chemistry, is doing some good work in this direction, and the results just

¹ From The Dietetic and Hygienic Gazette.

issued in Bulletin No. 13 emphasize the necessity for wide-spread inspection of, at least, certain kinds of food-stuffs. The Bulletin just referred to contains simply the results of work done under the direction of Dr. H. W. Wiley, chief of the chemical division on canned vegetables.

Take, for example, the results obtained in the examination of canned peas. Of forty-three samples of these goods put up in this country, 67.4 per cent. were colored with copper, and the amount of copper contained in many of the samples were large; thus 16 per cent. of the samples examined contained 25 milligrams of copper per kilo, while over 25 per cent. contained 18 milligrams of copper per kilo. Of thirty-six samples of French peas purchased in this country, all were found to be colored with copper except one, and that was colored with zinc. Further, the amount of copper in these samples was quite large; thus 60 per cent. of the samples contained 50 milligrams of copper per kilo, while 11 per cent. contained over 100 milligrams of copper per kilo. Obviously, the salts are used solely to secure and preserve in the vegetables a green color, thus adding to the attractiveness of their appearance. It may, indeed, be granted, as stated in the Bulletin, that the occasional use of a small quantity of a copper or zinc salt will not be accompanied by any practical injury to health, but certainly the regular and long-continued use of such metallic salts must, at least, be regarded as prejudicial to health. In any event, the consumer has a right to know the character of the material he is purchasing for his table, and may justly demand protection from such possible sources of danger.

Greening vegetables with copper salts has long been practiced in foreign countries, especially in France, and many arguments have been brought forward at various times in favor of this pernicious habit. Originally, the object sought was accomplished by cooking the vegetables in copper vessels, the acid juices exercising a solvent action on the copper with formation of soluble copper salts, which were readily absorbed by the vegetables, giving to the latter a fresh green color. Latterly, however, preservers and canners of such articles of food have learned that the desired result can be even more readily obtained by the direct addition of a copper salt, such as the acetate or sulphate of copper, and this constitutes the method now usually employed. Upholders of this method of treatment have sought to show that copper is a constant constituent of most animal and vegetable

tissues, and that, consequently, it cannot be considered, at least in small quantities, as injurious to health. It may, indeed, be granted that copper salts are not especially injurious, at least to the majority of mankind, when taken in small amounts, but this fact certainly cannot be used as an argument in favor of their use for the above purpose. Copper salts, like other related metallic compounds, are not needed by the human system; they are naturally foreign substances, and whenever they are introduced into the organism the system makes a strong and continuous effort to expel them. Larger doses of copper salts, however, unquestionably exert pronounced toxic action, and it is fair to assume that smaller quantities, likewise, have an unfavorable action upon the economy, although it may not be sufficiently marked at any one time to lead to pronounced results. Looked at from the position of a consumer of such goods, the practice is certainly to be condemned, for not only is it in direct violation of the law, which states, "that an article shall be deemed to be adulterated if it be colored, whereby damage is concealed, or it is made to appear better than it really is, or of greater value; or if it contain any added poisoning ingredient, or any ingredient which may render such article injurious to the health of a person consuming it;" but the custom has nothing to recommend it from a dietetic standpoint; the food-value of the product is not increased; the process is not necessary for the better preservation of the article; in fact, the only object gained is simply a greener and fresher appearance, which may be pleasing to the eye and possibly suggestive of greater palatability and increased nutritive qualities. But this latter view is wholly fallacious; nothing of practical advantage is gained by the method, and serious danger is threatened. France, in furtherance of her commercial interests, has done much to foster the practice, although for years her sanitary commissions and hygienic advisers strongly counseled against the use of a substance which was viewed with so much distrust by the consumer of canned goods. In Great Britain public opinion has always been strongly against this practice of greening foods with copper, and in almost all of the published prosecutions of English dealers for selling coppered peas, convictions have been obtained. In 1890 the authorities of Glasgow appointed a commission to investigate the matter, and at the end of their report we find the following conclusions which seem eminently appropriate: "We are of the opinion that the

process of regreening is essentially fraudulent in its intention and commercial results; that regreening with sulphate of copper certainly does not make vegetables more wholesome—probably makes them less wholesome, and in some proportion always does do; that the public in purchasing preserved vegetables should call for preserved vegetables free from salts of copper; that the local authorities, as guardians of the public health, ought to come to no understanding as to the sale of vegetables containing sulphate of copper, but hold themselves free to act according to the circumstances of the case and the scientific evidence to be had from time to time."

The Massachusetts State Board of Health has been even more outspoken in its condemnation of this practice of copper-greening canned vegetables. At a meeting of the board in May, 1891, the fact was presented that many vegetables preserved in tin cans and glass jars, and colored with salts of copper, were being sold in large quantities in the State. A list of the firms putting up such adulterated goods was presented, and the board advanced the opinion "that the sale of articles of food containing such well-known poisonous substances as the salts of copper, is a violation of the statutes relating to the inspection of food and drugs." The board rightfully considered that the practice of employing poisonous substances in the preparation or preservation of food products in any quantity whatever is an objectionable one, and it is the writer's opinion that if the other States of the Union would employ the same methods of inspection and oversight of foods and medicines, as have been in vogue in Massachusetts for the last few years, fraudulent and harmful methods of adulteration would be far less common in this country than they are to-day. The Department of Agriculture at Washington is, and has been doing, good work in this direction, as the Bulletins issued from time to time plainly show, and if this effort is continued we may confidently look for many important results, all ending to a greater freedom of food products from both fraudulent and harmful adulteration.

But copper salts are not the only metallic poisons to be dreaded in this class of food-stuffs. Lead salts are far more dangerous as poisons, and from the lavish way in which lead is used in the canning industry, one may confidently expect to find even more than traces of this poison in many goods now upon the market. The very magnitude of the packing and canning

business is a sufficient indication of the importance of this subject. The cry of warning has been sounded for many years, but the heed given to it has been, as a rule, only temporary or local. Some of the results noted in the Bulletin just issued from Washington, plainly show the necessity for careful investigation of canned goods for possible contamination with lead. Unlike copper, lead and lead salts are not usually added intentionally, but are carelessly introduced through the too lavish use of solder, or from the employment of low grades of tin-plate in the manufacture of the cans. Another way in which lead is introduced into this class of goods, is through the foolish employment of lead tops or covers to the glass bottles in which the vegetables are packed, such covers (made of sheet lead) more than counterbalancing the good accomplished by the use of glass receptacle, since the contents of the glasses have free access to the lead, thus enabling the acid juices to oxidize the metal and form soluble lead salts, which are bound to exert more or less of an injurious effect when taken into the system. As is well-known, one of the most characteristic properties of lead is its power of accumulating in the system even when taken in very small doses, and its use is always to be condemned in all operations where it might come in contact with food.

Two or three illustrations, taken from the Bulletin on food adulterants, demonstrate clearly the need for careful examination of this class of food-stuffs before allowing their indiscriminate sale to unsuspecting consumers.

"No. 10,879. *Petits pois extra fins. E. Du Raix, Bordeaux.*" (Sample purchased in Washington). "It was put up in a glass bottle with a lead top, and with nothing to intervene between the peas and the lead." * * * * "The peas were very small and green. No preservative was found. There were 66.2 milligrams of copper per kilo, or 27.9 milligrams per bottle. There was no zinc or tin. Lead to the enormous amount of 35.2 milligrams per kilo, or 14.8 milligrams per bottle was present. It was, of course, derived from the top. The use of this style of package displays the most flagrant disregard of the laws of hygiene. Goods thus preserved should not be allowed to enter our ports."

"No. 10,930. *Golden Wax String Beans, Steele Brothers, New Britain, Conn.* * * * * The sample was contained in glass jars with glass tops, the joint being made on rubber bands. Salicylic acid was present in the contents. There was no copper

present, but zinc was found to the extent of 3.2 milligrams per kilo, or 2.3 milligrams per bottle. Lead was likewise present, the amount being 34.4 milligrams per kilo, or 24.8 milligrams per bottle. The sample used consisted of two bottles. The rubber ring from one was free from lead, though containing zinc, but the ring from the other contained 7.54 per cent. of lead sulphate. It was probably from this source that the lead was absorbed by the sample."

"No. 10,976. *Haricots panachés*, E. Du Raix. Bordeaux. This sample was put up in a glass bottle with a lead top, nothing intervening between this cover and the beans. There was a white coating of a lead salt on the inner side of the cover. The beans contained lead in solution, or at least in an oxidized state, to the amount of 15.6 milligrams per kilo, or 11.9 milligrams per bottle. Of course, in this sample the occurrence of lead in the food cannot be explained away as representing possible fragments of solder. Copper was also present to the amount of 30.4 milligrams per kilo. This is equivalent to 14.4 milligrams per bottle. Salicylic acid in an extremely large amount was also found. This combination of lead, copper and salicylic acid, all in one sample, must be trying to the stomach of the consumer."

Cans containing lima beans, baked beans, corn, artichokes, asparagus, succotash, etc., mostly from American sources, were examined in large numbers, and lead found in very considerable quantity, although it must be mentioned that in many cases, no doubt, the lead came from finely divided solder carelessly and liberally used.

Careful reading of this Bulletin from the Department of Agriculture makes it very evident that thorough inspection of this class of preserved food-stuffs, of which there is an enormous consumption in this country, is imperative, and that wherever there is an adequate law for the protection of the people it should be enforced in all cases where the evidence is sufficiently plain to warrant prosecution. As a final result, we may hope for greater care in the canning and packing of these important accessories to our daily diet; for with the present wide-spread evil confronting us, thoughtful people will refrain from using such products until there is a greater surety of chemical purity.

The Practice of Cremation.



DEATH, the termination forever of earthly activity, is a solemn event. The awe and grief which the spectacle of death excites, the spirit of tenderness and charity to which it gives rise in the minds of the survivors, are among the purest and most unselfish feelings of our natures. In the presence of death we forget for a while the cares and struggles, the ambition, the success, or the failures of our career. Alas! however, with the departure of the vital spirit, the lifeless body of parent, husband, wife, or child is destined to decay, and must, therefore, be removed from the habitations of the living. Natural affection and religious sentiment, however pure and however powerful, must yield to the inexorable laws of organic change. In the interests of the living the corpse must be removed.

Among the cultivated nations of antiquity the bodies of the dead were either buried in the ground or burned. The latter mode of disposal seems, in fact, to have been more general among the Greeks and Romans. The Hebrews placed their dead in sepulchres, but during the prevalence of epidemic disease they practiced cremation. The advent of Christianity led to many radical changes in customs derived from the pagan world. Mistaken conceptions regarding the resurrection of the body led them to regard burial as the only fitting method of disposal of the dead. They did not appear to reflect that the decay which took place beneath the ground led inevitably, though by a slower progress, to physical destruction just as surely as the rapid action of the flames reduced the corpse to a heap of ashes. With the lapse of time inhumation became firmly fixed as a Christian ceremony. As generation after generation was gathered into the "cities of the dead," as in every age men, wearied with the struggles of life, turned their thoughts to the grave as a place of rest, the associations of fancy wove themselves closely into the subject of burial. The world-beaten man asked to be laid under green trees and springing verdure. The graveyard, often beautifully situated, with its aspect of solemn serenity—a spot of pilgrimage to sorrowing or loving souls—in proximity to the church, is blended

with our most sacred recollections. One of the most beautiful poems in our language is Gray's "Elegy Written in a Country Churchyard."

Notwithstanding the powerful influence of custom and association, there is a reverse side to this question which must force itself upon our attention. Putrefactive changes generate highly poisonous substances, and the products of the grave find their way into the air and water. Cemeteries may thus become a menace to public health; and this is especially the case in crowded cities. Graveyards originally situated in the outskirts become, in course of time, surrounded by dwelling houses. "God's acre" is then a source of contamination. The burial-ground itself, not infrequently, is overfilled by the bodies of those who have passed over to the great majority. It is asserted that those who dwell in the neighborhood of the large cemeteries of Paris are subject to headache, sore throat, and diarrhœa.

Such considerations have suggested the thought that we should do well to return to the ancient practice of burning our dead. The idea has, of late years, been advocated by eminent sanitarians, and appears to be gaining in general favor. Books have been written on the subject, crematories have been erected at various places in this country and abroad, and societies have been formed for the purpose of encouraging the practice of cremation. Apart from the mere effect of custom, the arguments in favor of inhumation can be classified as sentimental, religious, and medico-legal.

We have lately read with interest an abstract of the proceedings of the Twelfth General Assembly of the Society for the Propagation of Cremation,¹ held under the presidency of our accomplished colleague, Dr. Bourneville, editor-in-chief of *Le Progrès Médical*. In an able and comprehensive address, the president reviewed the arguments for and against cremation. Speaking of his own country, he declared his conviction that the cause had made less progress than its advocates could wish; that, nevertheless, the incinerations practiced during the last four years had contributed to a considerable degree to relieve the insufficiency of burial-grounds and to diminish the sources of infection. As matters now stand, cremation offers more assurance than burial against accidents from apparent death. Authoritative attestation

¹ Extrait du Procès-verbal de la Séance de la douzième assemblée générale de la Société pour la propagation de la Crémation. Supplément du Progrès Médical.

of the fact of death is often deficient, especially in small towns and sparsely-populated country districts. In France a body is not permitted to be cremated without a certificate of death from two competent observers. To this fact, together with their horror of being buried alive, he attributed the favor which the practice of cremation has obtained among women. He quoted the remarks of Dr. Melchior Whise, that "cremation would have had no formidable enemies had not the church declared the practice of heathen origin and anti-Christian, and that the church could, nevertheless, not produce a single passage from the Bible directly or indirectly prohibiting cremation." From its bearing upon the spread of infectious disease, he made reference to compulsory cremation of the bodies of patients dying of cholera.

Attention was called to the fact that the Council of Hygiene of Victoria, in Australia, had adopted the following resolution: "The chief of the health department is informed that the council advises the passage of a law authorizing cremation and permitting the head of the council to order the construction of crematories, in which shall be destroyed the bodies of persons dying from leprosy, yellow fever or cholera." That poisonous substances can be transmitted through the ground for a considerable distance is shown by the observation mentioned by Sir Spencer Wells. A salt of lithium was spread upon the ground at a distance of 150 yards from a well, the water of which was free from that metal. Repeated examinations were made, and at the end of eighteen days lithium was detected in the water, showing that the salt must have penetrated the soil and found its way into the well. It has also been demonstrated that earth-worms are instrumental in disseminating the bacilli of tuberculosis.

It must be admitted that incineration destroys all evidence of criminal poisoning. In the opinion of M. Bourneville, however, this possible danger is neutralized by the necessity of examination of the body by two experts, who cannot fail to understand that their reputations will be seriously compromised should suspicion of death by poisoning be subsequently excited. The speaker pointed also to the rarity of the crime. Of 190,809 cases which had come before the law courts of France during the year 1889, only five related to the intentional administration of poison.

The secretary-general, M. Georges Salomon, in his address, made allusion to the expression of Professor Virchow: "Cremation is a measure highly useful in ordinary times, and which

should be regarded as a necessity in times of epidemics. Large cities, in particular, should adopt the practice of cremation, because burial in cemeteries situated near centres of population is always a source of danger." M. Salomon informs us that certain cities, notably Marseilles and Cherbourg, have endeavored to substitute cremation for the dangers and inconveniences of cemeteries.

Sir Lyon Playfair makes use of the following emphatic language: "I have been officially charged with the inspection of several cemeteries for the purpose of reporting upon their condition. The recollection of what I have there seen still makes me shiver. The tomb should be considered, with the eye of science, as a crime toward the living and a dishonor to the dead."

Finally, in reference to the resurrection and a future state, we may repeat the apt words of Lord Shaftesbury: If destruction of the body by fire could have any influence upon the resurrection, "what would, in such a case, become of the blessed martyrs?"

Lead Poisoning from Tea.¹

BY J. P. WILLIAMS-FREEMAN, M.D. DURHAM, D.P.H.,

Weyhill, Andover.



BETWEEN the months of October and March last winter five cases of undoubted lead poisoning amongst cottagers came under my notice, besides about half a dozen cases in which there were obscure abdominal pains and constipation where no lead line was detected, either because the teeth were absent or because it was not looked for. I was quite unable to find the source of the intoxication in the three instances in which I carefully looked for it. In one case I had the tea examined, but with a negative result. During this autumn I have seen nine cases in which the patients had a well-marked blue line, as well as several others in which there were abdominal pains and constipation. Having practically excluded every other probable source, I again submitted samples

¹ From The Lancet.

of tea to Mr. Arthur Angell, Ph.D., F.I.C., of the County Laboratory, Southampton, and he reports as follows :

No. 1.—Loose tea as supplied to four of my patients. (This, the village shopman assured me, he received from London in large paper bags, with no lead paper.) “In this sample lead was distinctly present.”

No. 2.—A quarter of a pound packet in thick lead paper. “In this sample distinct traces of lead were found.”

No. 3.—A quarter of a pound packet not in a lead package. “Here the faintest possible reaction for lead was found.”

No. 4.—A quarter of a pound packet in lead paper. “In this sample a larger quantity of lead was found than in any of the other samples.”

Nos. 1, 2 and 3 were bought by me at a village shop. No. 4 was taken from a patient's house.

The symptoms have in all the cases been abdominal, with marked pallor, and the addition of severe facial neuralgia in one case, pains in the limbs in another, and gout in a third. There has been vomiting in two or three cases and diarrhoea (possibly, however, due to pills, of which the cottagers partake so freely) in one or two. One patient had a serious relapse after about a fortnight, but he may, of course, have re-intoxicated himself. I have seen no wrist-drop or eye symptoms. In three instances both parents have been affected at the same time, and in no case have there been any symptoms in children. They, however, usually have weak tea in small quantities. I have full notes of the quantities drunk in two or three cases, which may be of interest when I receive the quantitative analysis from Mr. Angell, who is fully investigating this matter ; but I hasten to send his preliminary report.

Alcohol and Brain Work.

It is a general impression that alcohol produces temporary ability for increased activity. Dr. Lauder Brunton asserts that “the influence of alcohol upon psychical processes is curious, for while it renders them much slower, the individual under its influence believes them to be much quicker than usual.” The same fact is true of all stimulants. They give the individual the impression of greater vigor and strength, but this is simply a deception. Truly “wine is a mocker.”

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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New Year Resolutions.

FROM time immemorial, the close of an old, and the beginning of a new, year has been the period when human nature, looking back over the mistakes and successes of the time that has gone, makes resolutions for the future, whereby the faults are to be avoided and their places occupied by more wholesome practices for the coming year. It is, truly, a most commendable practice, for, even though, as too often happens, these good resolutions are but short-lived, yet the influence that they leave behind certainly makes us none the worse, while in a certain number of instances they are persevered in and redound greatly to the benefit of the individual. It is quite certain that there are very few, if any, of our readers, who are not, so to speak, sanitary sinners, who do not either by commission or omission infringe upon or neglect the laws of nature. While we cannot expect any one to strictly obey all the laws of nature, yet it must be plainly evident to any thinking person that it would be better for us all if we did so. Hence, would it not be well for each of us to make some good sanitary resolution for the coming year. Those who have been reading this journal with attentive consideration during the past year must now have a fairly good idea of the laws of health and a little reflection will make clear to them the most important points wherein they have been wont to disregard these laws. If, then, they will resolve during the year 1894 to strenuously strive to redeem the sanitary shortcomings of the past, the result will be, unquestionably, most gratifying to all concerned.



Luminous Bacteria.

Various phenomena of illumination in the darkness of night, in the woods, marshes, and the sea, have been noticed from time immemorial, and not very long ago they were attributed to supernatural powers—spirits, for instance—by the superstitious. It is now established that they are the result of some form of microbic vegetation. The phosphorescence of a rotting stump in a marsh, of a fish in the sea, is due to such low life. M. Giard, a French naturalist, has recently observed a bright phosphorescence in a crustacean, the *talitrus*, a specimen of which he found when slowly walking on the beach. He found that the luminous condition emanated from the diseased muscles which contained phosphorescent bacteria. By inoculation he reproduced the microbes and the same luminous appearance in the muscles of other crustacea. —*Bacteriological World and Modern Medicine.*

Give the Children Your Companionship.

Parents do not, as a rule, sufficiently appreciate the value of their own personal companionship as a factor in the bringing up of their growing girls and boys. A parent is apt, while giving his children a great deal of many other things to give them but little of *himself*. But the little girl who is so favored through the years as to have her mamma for friend, playmate and companion, rarely, if ever, goes wrong when she grows up; and the boy feeling the subtle tie of the *camaraderie* between his parents and himself, is "grappled" to home and its pure and ennobling associations as with "hooks of steel." John Habberton, in a late article, relates the following incident of a preacher, who, when consulted by a father about a bad son over whom he had expended great agonies of prayer but whom otherwise he had left to his own devices, said, "My friend, your prayers won't do that boy any good unless you give him a good bit of your own *companionship*. Make yourself actively his friend, taking an interest in all his affairs, and he won't ask for bad company."

Sanitary Precautions at French Schools.

The Minister of Public Instruction has promulgated the following regulations concerning infectious diseases which may occur at any school. Directly any such disease breaks out the medical inspector may order them to be put in force. They are : For small-pox, exclusion of any sick child for a period of forty days and re-vaccination of all the masters and pupils ; for measles, exclusion of the sick for sixteen days, destruction of books, and holidays for all pupils under six years of age ; for diphtheria, exclusion of the sick for thirty days, successive disinfections, and no fruit to be consumed by the children during play time ; for scarlet fever, the same as for small-pox, and the school is to be closed should several cases occur in the first five days after the outbreak ; and for ringworm, successive evictions of affected pupils and readmission after treatment.

The Inexorable Facts of Heredity.

"I have drunk whisky every day for thirty-five years," remarked a gentleman of sixty, rather proudly, "and I don't see but I have as good a constitution as the average man of my age; I never was drunk in my life."

He was telling the truth, but to learn the whole truth you would have to study his children. The oldest, a young lady, had perfect health ; the second, a young man, was of a remarkably nervous and excitable temperament, as different from his phlegmatic father as possible ; the third, a young lady of seventeen, was epileptic and always had very poor health. Did the father's whisky drinking have anything to do with these facts ?

The instance may be duplicated in almost every community. Think over the families of your acquaintance in which the father has long been a moderate drinker, and observe the facts as to the health of the children. The superintendent of a hospital for children at Berne, Switzerland, has found by careful observation that only 45 per cent. of those whose parents used intoxicating liquors habitually had good constitutions, while 82 per cent. of the children of temperate parents had sound bodies. Of the children of inebriates only 6 per cent. were healthy. Can any man "drink and take the consequences," or must his children take the consequences?—*Quarterly Journal of Inebriety.*

Physical Culture.

To lead forth with equal step the mental and the physical powers of the human being is education in the wide and only true meaning of the term. There seems to have been a propensity in all ages of the world compassed by history, speaking a little broadly, to exalt the importance of mental exercise over that of the body, or *vice versa*; whereas the ideal man is the possessor of a sound mind in a sound body. The need of systematic physical culture as an essential element in education has until recently been largely overlooked in modern civilized communities. "Schooling" was thought to consist in cramming the immature brain with the thoughts and conclusions of others, and one who had successfully undergone this process was said to have received a "liberal education." It is satisfactory to note significant signs of a wholesome change being effected in public opinion on this matter. One of these signs is the issue of the second report of the British College of Physical Education. At the recent annual meeting the president, the Earl of Meath, was able to congratulate the supporters of the institution on the success which had attended their efforts to diffuse a wider interest in the subjects which it was founded to promote. The college has been established, he said, for the purpose of forming a centre for all who were interested in physical education; it offered to its members all the advantages of co-operation and to the public a guarantee that registered members of the college were qualified to teach physical training on scientific lines with due consideration for the individual needs and capacities of their pupils. There cannot be a doubt that the object is a worthy one and ought to command success—a result which, moreover, is likely to be assured under the guidance of the gentlemen whose names figure in the list of officers of the college.—*The Lancet*.

To Detect Tainted Meat.

The official inspectors in Dresden, Germany, make use of Eber's reagent: A mixture of hydrochloric acid, one part; alcohol, three parts; and ether, one part. With this a glass rod is moistened and held close to the suspected meat. If the polished surface becomes clouded (owing to the formation of ammonia), the meat is declared unfit for food and consigned to the fertilizer factory.—*Druggists' Circular*.

Physical Culture for Children.

A late correspondent of the *Union Signal* writes as follows:

“I would begin when a child was two years old and teach her to stand poised from the hips and slightly forward, chest up, abdomen contracted, toes turned out at an angle of sixty degrees, and neck erect, so that the collar-bone should be horizontal. You can teach a little child to know whether she is standing properly or not by having her occasionally to walk up against a door. She should touch it with her lips, chin, chest and toes. A plumb-line from the shoulders should pass through the hip and ankle joints. Then I would teach her to breathe slowly, inflating the chest upward and outward, not downward, keeping the abdomen contracted. This gives a wonderful feeling of buoyancy. As she grew older she should not take above ten breaths a minute, but they should be full, vigorous ones. Good breathing and good standing are almost enough of themselves to give good health and good figure. In walking I would show her how to keep her face and chest well over the advanced foot, and to lift the body by the muscles and the inflation of the lungs, I would see to it that she turned her toes well out. Seventy-five women out of every 100 walk with the feet straight or toe in. This increases the tendency to an inward turn of the knees, and encourages a pelvic contraction. The weight should rest on the balls of the feet, and the ball and heel should touch the floor at the same time. In her school days I would take pains to have her sit at her desk properly.

American Fear of Drafts.

The average American hives himself up in such a torrid temperature in cold weather that the moment he is out of doors he appreciates cold to its fullest intensity, and finds himself exceedingly susceptible to the assaults of Boreas. With the Englishman this is not true. The average temperature of the English house in winter is not above 60°. We have found this to be true of the hospitals as well as of the private houses, even in the great “Consumption Hospital” at Brompton, where the invalids, many of them pale and emaciated, were wandering about in thinnest white cotton garments. The temperature of the ward was never above 58° or 60°, yet no one complained of

discomfort, neither was there any evidence that any person was in the slightest degree inconvenienced by the temperature, which to a similar class of invalids in this country would be considered almost deadly. It is not an uncommon practice for Americans, especially invalids, to keep their rooms in winter time at a temperature of 78° to 80° , and we have not infrequently found the thermometer to indicate 85° to 90° in the room of an invalid to whom we are very sure a lower temperature would be absolutely intolerable; so high a temperature in the summer time would be pronounced "roasting." The dryness of the air, of course, renders a high temperature more tolerable in cold weather, if one chooses to subject himself to it; but this cold weather oven-baking, to which so many Americans subject themselves, has the effect of rendering them exceedingly susceptible to colds, which are contracted as the result of exposure to even slight changes of temperature, and drafts of air by which some part of the body is chilled, and to the weather changes against which even the predictions of the weather clerk do not always render adequate protection possible.

The Englishman, accustomed to a lower temperature, finds himself thereby to a very considerable degree protected from a large class of the petty ailments of which many Americans constantly complain, and which render the lives of not a few almost inconceivably wretched. The proverbial American fear of drafts is coming to be much talked and laughed about by our cousins across the Atlantic. Just now a ridiculous, but, to say the least, very impressive joke, intended to satirize this particular feature of the American temperament, is going the rounds of the American papers. The story relates to a certain Yankee who died, requesting on his deathbed that he should be cremated. Accordingly, soon after his death his friends proceeded to carry out his request. After suitable preparations his body was placed in the crematory and the door was closed. After the fierce, consuming flames had continued their work for a half hour or more, one of the company ventured to open the door to observe how the combustion was progressing. According to the account, for the veracity of which we cannot vouch, however, no sooner was the door opened than the defunct Yankee sat up amid the flames, stark, blue and shivering, and exclaimed, "Please shut that door! You know very well I never could stand a draft!"

The Disposal of Old Dressings at the Paris Hospitals.

Some twenty years ago I acted as house surgeon's assistant at a hospital in the county of Sussex, says the Paris correspondent of *The Lancet*. Pre-Listerian methods of dressing wounds were then in vogue and linseed poultices reigned triumphant. Running parallel with and behind the hospital was a row of houses which, although endowed with a most attractive name, was currently known to the older inhabitants as "Poultice Row" from a habit formerly in use amongst the "Gamps" of the said institution of "flinging" aged cataplasms "over the garden wall." So far as I know, no such primitive method of disposal of dressings has ever existed in Paris; but it is certain that until a few years ago old bandages and cotton-wool taken from the surgical wards were sold as perquisites by the *garçon de salle* to the *chiffonniers*, which thrifty beings, after having subjected the debris to a perfunctory process of washing, resold them to—*horresco referens*!—manufacturers of cigarette paper. In order to put an end to this scandalous state of things all the old *objets de pansement* were ordered to be burnt in the ward or bath-room stoves; in recent years, however, the quantity of cotton-wool used for dressings has increased so enormously that a special apparatus had to be invented for this incineration. After a series of experiments conducted at the Lariboisière Hospital, a form of combustion stove has been adopted for the purpose, and now all the hospitals of Paris are supplied with it. Lovers of the fragrant weed may, therefore, continue to smoke their cigarettes without entertaining any misgivings as to the origin—nosocomial or other—of the paper employed.

Health in the Home.

I want strongly to enforce that it is the women upon whom full sanitary light requires to fall. Health in the home is health everywhere; elsewhere it has no abiding place. I have been brought, indeed, by experience, to the conclusion that the whole future progress of the sanitary movement rests for permanent and exclusive support on the women of the country. When I enter a house where there is a contagious disease I am, of course, primarily impressed by the type of the disease and the age, strength and condition of the sick person. From the observa-

tions made on these points I form a judgment of the possible course and termination of the disease, and, at one time, I should have thought such observations sufficient. A glance at the appointments and arrangements and management of the house is now necessary to make perfect the judgment. By this glance is detected what aid the physician may expect in keeping the sick in a condition most favorable for escape from death; and by this is also detected what are the chances that the affection will be confined to one sufferer or distributed to many. As a rule, to which there are the rarest exceptions, the character of the judgment hereupon is dependent on the character of the woman who rules over that domain. The women are conversant with every nook of the dwelling from basement to roof, and on their knowledge, wisdom and skill the physician rests his hopes. How important, then, that they should learn, as a part of their earliest duties, the choicest sanitary code!—*B. W. Richardson, M.D.*

The Sin of Fretting.

There is one sin which it seems to me is everywhere, and by everybody is underestimated and quite too much overlooked in valuations of character. It is the sin of fretting. It is as common as air, as speech; so common that unless it rises above its usual monotone, we do not even observe it. Watch any ordinary coming together of people, and we see how many minutes it will be before somebody frets—that is, makes more or less complaining statement of something or other, which most probably every one in the room, or the car, or on the street corner, knew before, and which most probably nobody can help. Why say anything about it? It is cold, it is hot, it is wet, it is dry; somebody has broken an appointment, ill-cooked a meal; stupidity or bad faith somewhere has resulted in discomfort. There are plenty of things to fret about. It is simply astonishing how much annoyance and discomfort may be found in the course of every day's living, even at the simplest, if one only keeps a sharp eye put on that side of things. Even Holy Writ says we are born to trouble as sparks fly upward. But even to the sparks flying upward, in the blackest of smoke, there is a blue sky above, and the less time they waste on the road the sooner they will reach it. Fretting is all time wasted on the road.—*Helen Hunt.*

The Triumphs of Hygiene.

In an address before the Social Science Association at Brighton, England, Dr. B. W. Richardson, the eminent English sanitarian, gave the following brief summary of some of the benefits resulting from modern sanitary regulations :

“In England, from 1790 to 1810, Heberden calculated that the general mortality diminished one-fourth. In France, during the same period, the same favorable returns were made. The deaths in France, Berard calculated, were one in thirty in the year 1780; and during the eight years from 1817 to 1828, one in forty, or a fourth less. In 1780, out of 100 new-born infants in France, fifty died in the first two years; in the later period, extending from the time of the census that was taken in 1817 to 1827, only thirty-eight of the same age died, an augmentation of infant life equal to 25 per cent. In 1780 as many as 55 per cent. died before reaching the age of 10 years; in the later period, 43 per cent., or about a fifth less. In 1780, only twenty-one persons attained the age of 50 years; in the later period thirty-two, or eleven more, reached that term. In 1780 but fifteen persons arrived at 60 years; in the later period twenty-four arrived at that age.”

Exercise for Elderly People.

While the elderly man has less capacity for some forms of exercise than the younger adult, he has no less need than the other of the general and local efforts of the exercise. It is in the earliest period of mature age that the most characteristic manifestations of defects of nutrition—obesity, gout and diabetes, in which lack of exercise plays an important part—are produced; and the treatment of them demands imperiously a stirring up of the vital combustion. Placed between a conviction that exercise is necessary, and a fear of the dangers of exercise, the mature man ought, therefore, to proceed with the strictest method in the application of this powerful modifier of nutrition. It is impossible, however, to trace methodically a single rule for all men of the same age, for all do not offer the same degree of preservation. We might, perhaps, find a general formula for the age at which the muscles and bones have retained all their power of resistance, and at which the heart and vessels begin to lose their capacity to perform their functions. The mature man can safely brave all

exercises that bring on muscular fatigue, but he must approach with great care those which provoke shortness of breath.—*Fernand Lagrange, M.D.*

The Degradation of Modern Athletics.

We are so firmly convinced that the reasonable pursuit of athletics—that is, a pursuit that makes only such demands upon the time and health of its votaries as they can afford to honestly give—must work for good amongst all classes that we are very sorry to have to endorse the strictures which have lately been published upon the tendencies of certain modern athletes. The athlete in England has hitherto enjoyed a high reputation for purity of motive in his struggles. Many of us—probably those who knew least to the most marked degree—have believed that the chief reward in the athlete's eye was the sensation of honorable distinction in a competition promoted, secondarily perhaps, for the distribution of prizes or the gaining of challenge-cups, but primarily for the maintenance by health rivalry of a high physical standard. But coincidently with the enormous increase in the popularity of football and of public athletic meetings, there has come to light the existence of a widespread tendency to make the practice of athletics a source of livelihood, and some of the methods pursued with that intent go far to show that the healthy body of the athlete may envelop a mind in a considerable condition of moral disease. This much is generally conceded; what remains to be found is a remedy. It is not exactly our province to suggest expedients for the remedy of this state of affairs; but one thing seems to be certain—that the purification of the running-path and of the football field can only come about by the co-operation of the gentleman and the player. In cricket the paid and unpaid work together in harmony, and it seems to us that the same spirit ought to prevail in other departments of athletics. Believing as we do, that a certain amount of game-playing is a serviceable factor in English education, it is a matter of no little concern to learn that two important branches of athletics have been seriously impeached; and it will please us proportionately to hear that united effort on the part of some of the more distinguished athletic clubs is to be taken to remedy the evils.—*The Lancet.*

Hygiene of Occupations.

Sanitarians have within recent years given considerable attention to this subject, and as the result some very interesting statistics have been collected. It has been found as the result of these studies, that of all classes of men, clergymen enjoy the greatest longevity. Considering the period of life between 25 and 65 years, and the death-rate of clergymen at 100, the death-rate among those who follow other professions and trades has been found to be as follows, the figures given indicating the number of deaths in each trade or profession for 100 deaths among clergymen :

| | | | |
|--------------------------------|-----|----------------------------------|-----|
| Gardeners | 100 | Wool workers | 186 |
| Farmers | 114 | Armorers | 186 |
| Husbandmen | 126 | Tailors | 189 |
| Papermakers | 129 | Hatters | 192 |
| Grocers | 139 | Printers | 193 |
| Fishermen | 143 | Cotton workers | 193 |
| Cabinet makers | 148 | Clerks | 199 |
| Lawyers | 152 | Physicians | 202 |
| Brushmakers | 152 | Quarrymen | 202 |
| Mechanics | 155 | Bookbinders | 210 |
| Tradesmen | 158 | Butchers | 211 |
| Woolen drapers | 159 | Glass makers | 214 |
| Miners | 160 | Plumbers, painters, etc. | 216 |
| Shoemakers | 166 | Cutlers | 229 |
| Commercial travelers | 171 | Brewers | 245 |
| Bakers | 172 | Omnibus drivers | 267 |
| Millers | 172 | Wine merchants | 274 |
| Upholsterers | 173 | Bass singers | 300 |
| Masons | 174 | Potters | 314 |
| Smiths | 175 | Hotel waiters | 397 |
| Laborers | 185 | | |

The Action of Electricity on Microbes.

The methods employed by M. d'Arsonval to determine the action of electricity on living matter are already known. The process consists essentially in passing a current through a solenoid, in the interior of which the substance to be experimented on is placed. MM. d'Arsonval and Charrin recently made some investigations as to the effects produced on microbes by the current, selecting for this purpose the bacillus pyocyaneus. A culture of this organism was placed in the solenoid. At the commencement of the experiment a tube of nutrient agar-agar was inoculated with two drops of the culture. After the lapse of ten,

twenty and sixty minutes respectively, further cultures were made on different tubes, which were all placed in an incubator for some hours. An examination of the tubes then showed that a luxuriant culture of the bacillus had grown in each; the forms of the colonies had undergone no change and were similar to those grown in control tubes; the pathological characteristics appeared also to be the same. The color of the cultures, however, had been to some extent affected, for whilst in the first two tubes the organisms exhibited an intensely green color, which was scarcely less vivid in the second than in the first tube, the color in the third and fourth tubes was much less marked. These experiments seemed to show, then, that the electric current had some effect upon the organisms, although the action was not very marked. Further investigations in the same direction would be valuable and might possibly throw some light on the electrical state of the atmosphere as affecting the course of certain epidemics.—*The Lancet*.

Dress Sensibly.

A sprightly woman writer writing to women says: "If you want to be happy, dress sensibly, and according to the season. Women are eaten up with neuralgia, say the doctors. No wonder! They sit still all the morning by a hot register, then tie the five or six-inch strip of bonnet over their hair, a bit of lace film over their bangs, put on kid boots, with silk or thread stockings underneath, and dawdle along the pavement with cold, raw winds smiting their temples, their ears, their throats, and the bases of what should be their brains. The outraged nerves shrink and quiver under their barbarous exposure. But no matter; the chest is well covered with fur cloaks and sacques; but cold feet, numb ears, reddened temples, the exposed neck, will have their own story to tell.

"Then most of the so-called genteel persons won't wear flannel next to the skin. Why? Because their waists will look too large, and it is the style to be as near in shapeliness to that delightful and lovely insect, the wasp, as humanity can be forced. Thinking of these things, I sometimes wonder if women really like to ache and groan, and to be laid aside every few days with agonizing headaches or panting, laboring hearts?

"Strange, if true."

Cows and Consumption.

There can be no doubt that the use of the flesh of cows and of unsterilized cow's milk is one of the most widely active causes of consumption, and one which has been very aptly designated "the great winter plague of civilization." This fact has been known to the medical profession for many years, and yet no very radical measures have been taken with reference to the suppression of this cause of disease, which is accountable annually for many times more deaths than cholera or any other of the epidemic diseases.

Beefsteak is consumed in greater quantities than ever, owing to its present cheapness, and cow's milk is swallowed at all times and at all places without the slightest inquiry into its antecedents, and without the application of any means for the destruction of mischievous microbes which the lacteal fluid may contain. Dr. E. F. Brusch calls the cow "the wet nurse of consumption," and makes the following interesting observations concerning the relation of cows to this dread disease:

"Scrofulous females in the human race usually secrete an abundance of milk, because in scrofula there is an unusual tendency to glandular enlargement and activity. As the mammary is the highest type of glandular structure, it is stimulated to increased action. A scrofulous cow is usually the largest milker, and the closest kind of consanguinity has been practiced by cattle breeders, with the object of producing a scrofulous animal, not because she is scrofulous, but because the particular form she represents are the largest yielders of milk. We find, too, that consanguineous breeding has been alleged as one of the causes of tuberculosis in the human race, where it never can be conducted with so close and intimate blood relatives as in the dairy animals.

"The absence of phthisis in high, dry, mountainous regions has been accounted for by reason of the altitude and absence of moisture in the atmosphere; but here occurs a somewhat curious fact, namely, that the cow does not thrive in high, dry, mountainous districts, but in the low, swampy, moist region, where the succulent and lush grasses grow, is the place where the cow flourishes, and it is in these regions also that tuberculosis abounds in both the bovine and human subjects."

Health a Duty.

Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for, as a diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality.

Men's habitual words and acts imply that they are at liberty to treat their bodies as they please. Disorder entailed by disobedience to nature's dictates they regard as grievances, not as the effects of a conduct more or less flagitious. Though the evil consequence inflicted on their descendants and on future generations are often as great as those caused by crime they do not think themselves in any degree criminal.

It is true that in the case of drunkenness the viciousness of a bodily transgression is recognized ; but none appear to infer that if this bodily transgression is vicious, so, too, is every bodily transgression. The fact is all breaches of the law of health are physical sins.

When this is generally seen, then, and perhaps not till then, will the physical training of the young receive all the attention it deserves.—*Herbert Spencer.*

The Proper Hours of Sleep.

Man, in common with most of the animal creation, has accepted the plain suggestion of nature that the approach of night should imply a cessation of effort. If he ignores this principle, his work is done against inherited habit, and, so far, with additional fatigue. It follows, too, that he must use artificial light and sustain its combustion at the cost of his own atmosphere. Naturally, therefore, when he does rest, his relief is not proportioned to his weariness. As in many cases, however, sensation is not here the most reliable guide to judicious practice. Established custom affords a far truer indication of the method most compatible with healthy existence. The case of the overworked and the invalid lends but a deceptive color to the argument of the daylight sleeper. In them excessive waste of tissue must be made good, and sleep, always too scanty, is at any time useful for this purpose. For the healthy majority, however, the old custom of early rest and early waking is certain to prove in future—as returns of longevity and common experience alike show that it has proved in the past—most conducive to health and active life.—*London Lancet.*

The Health of Italy.

Year by year the statistical reports issued by the Italian Government are gaining in method, in fulness and in scientific precision, and those for which the Department of Public Health is responsible are a conspicuous illustration in point. One drawback, however, is common to the whole series, and that is the lateness of their appearance. For instance, we are not allowed to know the mortality returns of the first half of 1892 till July of 1893. Still compared with the old perfunctory system, now happily superseded, the superior accuracy and comprehensiveness of the new are worth waiting for, with which consolation we must be content and hope for the yet further improvement by which the subject-matter dealt with will savor less of "ancient history." From a return which we owe to the Public Health Department we can now give the number of deaths from infectious diseases in each province of the kingdom from January 1 to June 30, 1892. These, all told, were 426,604—far too high a figure for a population of 30,200,000. This is a notable rise on the number of deaths for the corresponding six months of 1891, which was 402,479. Special causes, however, are cited to explain this difference between the two semesters—a difference which, as will be seen from the subjoined table, was most marked in January and February of each year :

| MONTHS. | NUMBER OF DEATHS. | |
|--------------------|-------------------|--------|
| | 1891. | 1892, |
| January | 79,942 | 91,689 |
| February | 73,548 | 82,208 |
| March | 73,136 | 79,314 |
| April | 66,742 | 61,254 |
| May | 55,592 | 57,381 |
| June | 54,040 | 54,758 |

The principal causes of the severe mortality registered in the first months of 1892 were the diffusion and the gravity of the influenza epidemic. In fact, owing to this malady there died in the first semester of 1892 no fewer than 19,508 individuals, whilst in the corresponding period of 1891 the deaths due to the same cause were only 118. On the other hand, there was a great diminution of the mortality from other infectious maladies in the first half of 1892 as compared with that of 1891. We cannot transcribe the parallel columns given in the official report before us for the two

years, but we may select a few prominent heads, as, for instance, that of small-pox, which for the first half of 1891 numbered 659 victims, as against 1,360 for the corresponding half of 1891. Measles in the former period caused 6,458 deaths, and in the latter 11,430; erysipelas 1,756 in the one and 2,110 in the other; military fever 98, as against 144, and typhoid fever 5,105, as against 6,792. The deductions from these figures is the eminently satisfactory one that in preventable zymotic disease the effect of improved hygiene and sanitary precautions is steadily making itself felt. Malaria, in spite of all that has been done for its etiology, its pathognomonic signs (particularly in the circulation) and its treatment, remains a pretty "constant quantity" so far as its victims are concerned—the deaths from it in the first half of 1891 having been 4,882, as against 4,973 in the corresponding half of 1892. Thanks to the Instituto Anti-rabbico of Milan, where the Pasteur method is practised with a care and skill hardly inferior, if at all, to that of the parent institution, deaths from hydrophobia are year by year diminishing in the Italian peninsula—23 being the number of victims from the fell disease in the first semester of 1892 and 49 in the corresponding six months of 1891. These results are still more apparent on a comparison of the last five years with each other—that is, from 1887 to 1892—and clearly prove that, thanks to her independence and unity, Italy has now fallen into line with other civilized nations and is beginning to enjoy the advantages of more enlightened institutions, especially in the all-important department of the *salus populi*.—*Lancet*.

Danger in Fondling Pet Animals.

Under the heading, "Beast to Beast," the *Medical Journal* calls attention to the danger of contracting the serious diseases, diphtheria and hydatid, catching the former from pigeons, and the latter from dogs, by the habit which many have of kissing these animals when fondling them as pets. The writer has not infrequently seen an aristocratic lady, whose exquisite toilet indicated that she doubtless belonged to some wealthy family, complacently allowing her cheeks and even mouth to be rubbed by the nose and licked by the tongue of a lap-dog that was treated with all the gentleness and caressed with all the fondness which the tenderest mother would manifest toward an infant. The good woman was

doubtless in blissful ignorance of the fact that her canine fondling might, at every lap of his little tongue, be planting upon her face and lips the eggs of a hideous parasite which might thence be easily transferred to her interior, and there, after hatching out and developing to a higher stage, work their way into the liver, lungs and muscles, even to the brain, and there form cysts and sacs which in time might develop to such prodigious size as to result in dropsy and even in death.

Pet cats are now recognized by skin specialists as being a common source of ringworm and favus, two very obstinate and loathsome parasitic diseases of the skin. Favus is supposed to originate in mice. Cats, in catching mice, themselves catch the disease, and communicate it to those who fondle them.

In times when diphtheria and scarlet fever are prevailing, the house-cat must be regarded as a constant source of danger. Cats not infrequently make visits to other families, neighbors, with the children of whom it has become acquainted, or perhaps makes a social cat-call upon some neighboring cat; and in case the house visited is infected with diphtheria or scarlet fever, there is necessarily an exposure of the animal to the disease. Cases have occurred in which the origin of a fatal attack of scarlet fever or diphtheria could be directly traced to the family cat as the means by which the contagion was conveyed from the infected family to the little ones of a household, which, in careful seclusion and fancied security, was thus taken unawares by the dreaded malady.

House-dogs may be also regarded as in no small degree dangerous. The habit of dogs wandering about the neighborhood visiting other dogs, and engaging now and then in combat with other belligerent canines, exposes the household constantly to the invasion of microbes of a dangerous character. Dogs are not by any means very cleanly in their dietetic habits; it is not an uncommon thing to see even a well-bred dog dragging home a bone with a mass of carrion attached, in which germs of many sorts are holding high carnival. It is doubtful whether pets of any sort, especially household pets belonging to the brute creation, should be tolerated unless kept caged. If a watch-dog is considered necessary or desirable, the animal should be housed out of doors, and should never be admitted to terms of too great familiarity with members of the family. Many a child has lost its life through infection from a kitten or some other household pet.

This is by no means a mere matter of scientific sentimentality, but one to which parents should give serious attention.

Drinking Milk.

One should not drink milk, but should eat it. But it may be asked, "How can one eat liquid?" By taking it in small sips or bites, chewing at the same time some hard food substance, such as a crust of bread or a cracker; by this means the milk is mixed with the saliva as perfectly as food which requires mastication to enable one to swallow it. A gentleman once complained to the writer that he could not take milk. He had on one occasion nearly died in consequence of drinking two or three glasses of milk in rapid succession when very thirsty. An hour or two after drinking the milk, he experienced great distress at the stomach. After suffering a while in this manner, he experienced a choking sensation in his throat which he could not relieve, and soon discovered a mass of some sort of substance projecting into his mouth, which he seized, and to his great astonishment pulled out a cylinder of milk more than a yard in length. The milk had been swallowed so rapidly that it had coagulated into a solid mass. This is likely to occur when milk is swallowed in the manner in which one takes water or other drinks. The digestion of such a mass must be extremely slow, as the gastric juice can only act upon the outside, whereas, if the milk is taken in small sips and thus mingled with the saliva, its digestion is facilitated by the stimulating effect of the saliva upon the stomach, causing it to secrete gastric juices freely; by this means the milk coagulates in soft, small curds in the stomach, instead of remaining there in solid masses.

Fish and Tuberculosis.

Professor Combemale, of the Faculty of Medicine of Lille, who has been experimenting with the object of ascertaining the possibility of fish transmitting tuberculosis to mammals has found that fish after being fed with bread containing tubercle germs do not become tuberculous. The same negative result was obtained with fish that had lived in water infected with tuberculous sputa.



Twenty-first Annual Meeting of the American Public Health Association in Conjunction with the International Congress of Public Health.

(Continued from page 722, Volume VIII.)

Notes on Cholera and Its Management in Hull, England. This was the title of a paper contributed by Dr. John Wright Mason, Medical Officer of Health in Hull, but was read by Dr. Charles N. Hewitt, of Minnesota, in the absence of the author.

The first epidemic of cholera occurred in 1832, but the total number of deaths from the disease did not exceed 270. On the 10th of August, 1849, the great visitation of the disease commenced. The total number of cholera and diarrhoea victims during the invasion was 1860, being one in forty-three of the whole population of 11,000. Six hundred persons died from cholera alone in one week in September. The average age of the victims was from 30 to 36 years. Of the total number of deaths recorded, 1738 belonged to the laboring classes and 122 to the wealthy. The greatest mortality occurred in those parts of the town where the levels were the lowest, and in which the unsanitary surroundings were the most noticeable. It is recorded by an eminent minister that one day—Black Sunday—he himself interred no less than forty-three bodies of his fellow-citizens. The water supply was at that time obtained from the Stoneferry waterworks, situated one and a half miles from Hull and two and a half miles from the mouth of the river, the water being obtained from the River Hull, the widespread character of the epidemic being greatly attributed to the impurity of the river water. Since 1849 Hull has increased both in wealth and population, and its area has been considerably extended. The number of emigrants passing through the port en route for America has averaged between 50,000 and 60,000 yearly during the past ten years. The Infectious Diseases (notification) Act, 1889, has been applied to the port as well as to the urban authority. Measles was included among the notifiable diseases on the 10th of February, 1893.

Cholera follows the line of international communication, and with the modern increased facilities for rapidity of transit, the danger of its possible invasion is increased by emigration or otherwise. England does not depend upon the false security of quarantine, but rather upon its sanitary administrations, and each district should be in such a state of sanitary preparedness that the disease, if imported, should not spread. The experience of 1892, during the epidemic at Hamburg, in those ports which were exposed, and possibly none more so than the port of Hull, which was in daily communication with that cholera-stricken city, must have inspired confidence in the public mind in this country and the continent of Europe, that medical inspection, the due regard for the rigorous inspection of all articles

likely to convey infection, improved sanitation and efficient hospital equipment, were alone sufficient to arrest the progress of the disease. Our first line of defense against the introduction of cholera consists of the medical inspection upon arrival, both by day and night, of all vessels from cholera infected or suspected ports, and should cholera have developed during the voyage among any of the passengers or crew, the removal of the patients to hospital and the isolation of suspected cases, and the detention on board the vessel of such persons who may be in a filthy or otherwise unwholesome condition, and who cannot satisfy the medical officer of health as to their place of destination.

The second line of defense against the possible introduction of cholera or other diseases should be well protected, and the early preparations against the means by which such diseases if imported, spread, should be studied, thought out and perfected in the interim, and not during epidemic prevalence and excitement. Special attention should be directed toward a pure and unpolluted water supply, the periodical and regular removal of all excreta and refuse matters in the midst of populations, the frequent flushing of all drains and sewers, the prevention of overcrowding, the systematic inspection of common lodging houses, and lastly, but not least, our food supplies.

Hull is essentially a privy town. The death rate of Hull from all causes for the ten years 1882 to 1891, averaged 20.7 per thousand. The death rate from fevers during the same period was equal to 1.26 per thousand, and for diarrhoea alone 1.10 per thousand.

The author then dwelt upon the management of cholera. The precautions which are adopted in Hull, of what has been described as "the movement of a sanitary column," are as follows:

Immediately upon the receipt of a notification of cholera, or of sudden illness of a choleraic character, either by the medical practitioner in attendance, the sanitary inspectors or the police, the medical officer of health is communicated with and immediately visits the case, or in his absence his assistant. Should the case admit of removal, the horse ambulance, fully equipped, with trained men in attendance, is immediately requisitioned by telephone. The assistant inspector of nuisances for the district in which the case occurs is forthwith acquainted, and makes his appearance with a column comprising flushers, lime washers and disinfecting staff. He superintends the removal of the inmates of the house to hospital for the purpose of bathing and the disinfection of their clothing, the disinfection of the house, together with all articles of bedding, clothing, etc., which has been exposed to infection, and the destruction of such articles as may be ordered by the medical officer of health or his assistant. The contents of the privy are removed to the destructor for cremation and the interior cleansed, disinfected and lime washed. The subsidiary drains in the immediate contiguity of the house are thoroughly flushed, and disinfectants are freely distributed in the neighborhood of the outbreak.

EVENING SESSION.

At this session Dr. George M. Sternberg, Surgeon-General of the United States Army, delivered a stereopticon lecture on *Pathogenic Bacteria*.

Slides of the typhoid bacillus, the bacillus of anthrax, of tuberculosis, of glanders, of tetanus, of influenza, of hog cholera, etc., were shown.

On motion of Dr. A. R. Reynolds, of Chicago, a vote of thanks was extended to Dr. Sternberg for his entertaining lecture.

OCTOBER 12.—THIRD DAY.—MORNING SESSION.

The first paper read was by Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, entitled:

Tuberculosis and the Food Supply.—The author assumed without argument, as already established by scientific investigation, that tuberculosis is a parasitic disease, that it is caused by the multiplication of a specific micro-organism in the tissues of the animal body and by no other means. Of the two methods by which the disease is contracted with man as well as with animals, it may be admitted that the most frequent and therefore the most important is the inhalation of the micro-organisms suspended in the inspired air. The speaker had no means of estimating the proportion of cases of tuberculosis which arise from infected food, but he was prepared to admit that tuberculosis of the abdominal organs and tubercular meningitis, particularly of children, were generally caused in this way. The author then considered infection through the milk supply and infection through the meat supply. Tuberculosis is one of the most common diseases of milch cows. It exists in many dairies, and may affect 50, 75 or 100 per cent. of the animals in large herds. We do not know the average proportion of cows affected in this country, but in the dairies around our large cities from 3 to 5 per cent. have been affected when the diagnosis was made by the ordinary methods of examination. In the United States we have no statistics of the results of the tuberculin test, except with herds known to be tuberculous. Fortunately, the milk from all tuberculous cows does not contain the bacilli. When there are tubercles in the udder, however, the milk may contain immense numbers of these germs, and this is particularly the case if the tubercular mass softens and its contents escape into the milk ducts. The milk from cows so affected must be considered an extremely dangerous article of food.

The prevalence of tuberculosis in dairy cows can be lessened, and the danger from infected milk diminished by a careful and periodical inspection of the herds from which the milk supply is obtained. This inspection must consist not only of a physical examination, but must also include the tuberculin test. There must in addition be some means provided for securing the destruction of animals found to be tuberculous.

Syphilitic Infection as a Vehicle of the Communication of Tuberculosis.—By Dr. Manuel Carmona y Valle, of Mexico. The author of this paper cited the history of a case demonstrating the possible association of the syphilitic virus with the pathogenic agent of tuberculosis, and the possibility of transmission not only of the syphilis, but of the tuberculosis also. He had found in the ulcerations of the throat both characters.

The Influence of Habitations in the Propagation of Tuberculosis.—By Dr. Manuel Gutierrez, of Mexico. Pulmonary tuberculosis is more frequently observed in the United States than in the Republic of Mexico. The statistical records give a proportion of from 118 to 120 per thousand in

America, while in sunny Mexico it does not reach the number of sixty to every thousand. One of the causes which contribute to produce so notable a difference in the propagation of so dangerous a disease, is the difference of the elevation in both countries, because we know that dry air is not a vehicle for the multiplication and generation of the bacillum of Koch, and the relative rarefaction of the air is in a direct ratio to the elevation. Mexico being 2257 metres above the sea level, it is consequently not difficult to explain its superiority in arresting the conditions favorable to the propagation of a disease which undermines so many constitutions.

The author's attention has been called to the fact that not only in the hotels and public establishments, but also in private dwellings in the United States, there are rooms constantly illuminated with artificial light and in which the light of the sun never penetrates. The individuals who work therein are deprived for many hours of the beneficial action on the economy that we know solar light exerts, and we know that these privations, and the special conditions that accompany it, can contribute to the development of tuberculosis by producing (1) the anemia and its consequent state of malnutrition, preparing the ground that serves for the cultivation of the germs of the disease; (2) increasing considerably the temperature of the place illuminated, constitutes also a propitious cause of multiplication of the pathogenic principles involved and in the tuberculous process.

Prophylactic and Therapeutic Value of Food.—This paper was contributed by Mrs. Ellen H. Richards, of Boston. She said the prophylactic value of food is to keep the human body in a high condition of health. The main object to be gained is to establish a higher standard of health in the community, to make as widely known as possible the fact that most of the ill-health now prevalent is needless; that a little self-denial, a little more attention to the rules of hygiene, a little more living in the open air, would cause a large number of the diseases now so common to disappear.

Hygiene of Hair-dressing and Barber Shops.—By Dr. Angel Contreras, Pueblo, Mexico. The disease which persons are most liable to contract in barber shops is scurf, and the author, therefore, touched on what appeared to him the most important points in the consideration of this matter. Scurf is understood to be a disease of the capillary system, caused by the presence of vegetable parasites. The disease can be transmitted by some animals which already have it; but the contagion most commonly takes place from person to person and in families, in educational establishments, and in barracks the disease assumes an endemic character. Several times the centre of this propagation has been found in a hair-dresser's or barber's shop, and has arisen from the use of instruments which have been badly cleansed. Barbers and hair-dressers ought, therefore, to be very careful in cleansing the utensils which have served for one person before they are employed on another. All the utensils should be subject to the action of heat for a space of ten minutes in a vessel or receptacle at a temperature of 120 degrees, and the razors in an oil bath.

The Water Supply of Chicago, Its Sources and Sanitary Aspects.—By Arthur R. Reynolds, M.D., Commissioner of Health of Chicago, and Mr. Allen Hazen.

The extensions of the various tunnels within the last two years have

undoubtedly secured for the city a water less liable to sewerage pollution than was formerly obtained. The available analyses of the water are perhaps inadequate to measure accurately the improvement, but fortunately we can apply that most satisfactory of all water tests, the typhoid fever death-rate. The improvements in the water intakes have not all been made at a single date, but if we compare the two years ending September, 1892, and September, 1893, we find that during the earlier years the shore intakes at Lake View and Chicago Avenue, were in common use while the four-mile tunnel was not yet opened, while for the greater part of the latter year the shore inlets were entirely closed and the four-mile tunnel and the one-mile tunnel at Lake View were in use. For the year ending September 30, 1892, the number of deaths from typhoid fever in Chicago was 1790, in a total of 26,646, or a percentage of 6.72. For the year ending September 30, 1893, deaths from typhoid fever were 712 in a total of 26,977, or a percentage of 2.64. It is most unfortunate for this comparison that the old supplies were partly in use during the first few months of the latter year, before the four-mile tunnel was opened. We may believe that if this had not been the case the comparison would have been still more favorable to the improved supply. It is a well-known fact that people using a water supply to which they are not accustomed, are often more susceptible to any infection which it may contain in the water than are those using such water regularly. A striking illustration was furnished by Philadelphia in the Centennial year, when the typhoid death-rate was nearly doubled, while in Chicago, in the present year, for the first five months of the Fair period the rate has been less than half as high as for the corresponding months of the preceding year, and for the entire year under consideration, in spite of the vast number of visitors continually present, there has been a reduction of over 60 per cent. in the typhoid fever death-rate. This reduction is most striking, and it can hardly be doubted that the improvements in the water supply have been the chief if not the only cause. As there is no marked local distribution of the typhoid fever so there were no exceptions to the general improvement with better water supply. Not a single ward but showed a substantial reduction. Stronger evidence could hardly be produced to show the casual relation between the contamination of the water supply and typhoid fever. The mortality percentages from typhoid fever in a number of cities may be compared as follows: Chicago, 1892, 6.72; in 1893, 2.64; Philadelphia, 1892, 2.22; Boston, 1.22; Paris, 1.01; New York, .90; Brooklyn, .80; London, .49; Berlin, .42. The cities having the lowest typhoid fever death-rate, London and Berlin, use only filtered water. London draws nearly all of its water from the two grossly polluted rivers, the Thames and the Lee, and, after filtering it, supplies it to a population that is almost free from typhoid fever. It may be a question worth considering by the engineers whether filtration would not be as cheap and effective a means of improving the water supply as the further extension of the tunnels.

Removal of Pathogenic Bacteria from Drinking Water by Sand Infiltration. This paper was read by Mr. George W. Fuller, of Lawrence, Mass.

That drinking water is a carrier of some diseases there can be no doubt. Numerous laboratory experiments by many investigators indicate that the bacteria generally attributed to be the specific organism of typhoid fever,

44—The Annals of Hygiene

Asiatic cholera, and other diseases live in ordinary drinking water for many days. The results of long-continued investigations at the Lawrence Experiment Station show that the typhoid bacillus is able to live in the water of the Merrimac River, in greatly diminished numbers, for a period of at least twenty-four days. Other investigators, using different water and different conditions, estimate the length of life of this germ at from three to eighty days. The duration of life of the cholera spirillum in various waters has been observed to be from two days to seven months. Modern hygiene demands that drinking water shall be free from pathogenic bacteria, and the means by which such water can be obtained are worthy of our most careful consideration.

During the past forty years many filter plants have been constructed in Europe and numerous experiments in the filtration of water have been made, particularly during the past decade. This is largely due to the aid of bacteriology which enables us to determine the actual efficiency of filters with regard to the removal of bacteria. The operation of many filters is quite satisfactory as is shown by the low death ratio from these diseases conveyed by drinking water and by the results of numerous bacterial analyses.

In summing up our present knowledge upon the removal of pathogenic bacteria from drinking water, we may state that in addition to the experience of certain European cities, the Lawrence investigations covering a period of more than five years and including the bacterial examination of more than 11,000 samples of water, indicate that it is entirely practicable to construct filters that will economically purify water and remove more than 99 per cent. of bacteria which may be present in the unfiltered water.

The Potable Waters of the Country Presenting Many Dangers, by Dr. Thomas Noriega, of Mexico.

Statement of Scientific and Experimental Data for the Establishment of International Maritime Police, by Dr. E. Liceaga, of Mexico.

Dr. Domingo Orvananos, of Mexico, read a paper entitled *Difficulties in the Practice of Quarantine in Some of the Mexican Ports*.

Other papers were read as follows on this subject: *The Canadian Quarantine System*, by Dr. Frederick Montizambert, of Quebec, Canada; *Quarantine System of Texas*, by Dr. R. M. Swearingen, of Texas; and *Quarantine*, by Dr. S. B. Olliphant, President of the Louisiana State Board of Health.

EVENING SESSION.

At this session addresses were delivered by Dr. Sarah Hackett Stevenson, of Chicago, on *Municipal Sanitation*; by Miss Ada Sweet, of Chicago, on *Voluntary Health and Public Improvement Societies*; a paper by Sir Charles Cameron, of Dublin, on *Importance of Civic Public Hygiene to the State*; *Municipal Sanitation of Minneapolis*, by Dr. E. S. Kelly, of Minneapolis; and *The Importance of Sanitary Bureaus, Their Economic Organization*, by Dr. Jesus E. Monjaras, Sanitary Inspector of San Luis Potosi, Mexico.

OCTOBER 13—FOURTH DAY—MORNING SESSION.

Papers were read at this session as follows: *The Best Way to Restore the Practice of Vaccination to its Proper Place as a Preventive of Small-pox*,

by Dr. Charles N. Hewitt, Secretary of the Minnesota State Board of Health; *Animal Vaccine, Why it Should be Preferred to Human Vaccine*, by Dr. Miguel Marques, of Chihuahua, Mexico; *La Grippe*, by Dr. Gregorio Mendizabal, of Mexico; *Diphtheria in the City of Mexico*, by Dr. Roque Macouzer, of Mexico; *Notes on Scarlet Fever in the City of Mexico*, by Dr. Francisco Marin, of Pueblo, Mexico; and *Unrest*, by Dr. William Oldright, of Toronto.

An Experiment in Disinfection, How an Epidemic of Pneumonia was Checked. This was the title of a paper read by Dr. Jerome Cochran, of Birmingham, Ala. The paper dealt with an epidemic of pneumonia checked by disinfection. The total number of cases during the epidemic was ninety-three; total number of deaths thirty, nearly one third of the cases. The epidemic occurred in the prison at Pratt Mines, Alabama. The prison was divided into three sections, and while the disinfection was going on in one section the convicts belonging to that section were crowded into the other two sections. The mattresses were taken off, and these together with the blankets were scattered over the floor. Then by means of a force-pump and a long hose-pipe the ceilings, walls and the floors with their contents were literally deluged with a solution of bichloride of mercury, 1-100, until the bichloride solution stood in puddles and ran in rivulets on the floors. The mattresses, etc., were turned over so as to be wetted as thoroughly as possible on both sides. Dr. Cochran has more confidence in the disinfecting power of heat than in the bichloride. The mattresses, blankets, etc., were, therefore, put into large steam chambers that had been constructed for the purpose and kept there for six hours, after which they were taken out and dried. In the meantime the disinfected wards were thoroughly scrubbed out, whitewashed and fitted up so that they could be occupied again the next day. The convicts, before they were returned to their old quarters, were required to take a bath and to put on clean clothes. In one week the epidemic, attacked at the period of its most rapid increase, went out like a fire under a deluge of water.

A Contribution to the Study of Yellow Fever, from a Medico-Geographical and Prophylactic Point of View, in the Mexican Republic. This paper was read by Dr. E. Liceaga, President of the Superior Board of Health, Mexico. The author presented the following conclusions:

(1) The places where yellow fever reigns, and which can be considered as centres of infection, are in the Gulf of Mexico, Vera Cruz, Frontera, Campeche and the districts on the northern coast of the Yucatan Peninsula, the last named separated by the Yucatan Canal from the island of Cuba, where the fever also reigns. On the great Pacific Coast, which belongs to the Mexican Republic, there is not a single yellow fever centre.

(2) All the Mexican territory on the Gulf of Mexico and on the Pacific Coast is well adapted for the disease when imported.

(3) Yellow fever has become epidemic in the following places on the Gulf Coast: Matamoros, Altamira, Tampico, Tuxpam, Papantla, Misantla, Nautla, Alvarado, Goarzaualcos Minatitlan Lagang, and San Juan Bautista de Tabasco.

(4) The epidemic has extended into the interior, but never into places situated more than 1008 meters over sea level.

(5) On the Pacific there is not a yellow fever centre, but it has been imported into the following places: On the peninsula of Lower California, La Paz y Todos Santos; on the continent, Guaymas, Altata, San Blas, Mansanillo, Santiago, Acaponeta, Puerto Angel, Salina Cruz, Tonalá Soco-nuzco, Tapachula and San Benito, and in the interior in Hermosillo y Culiacan.

(6) Immunity against yellow fever is obtained after having had the disease in any of its forms. It is possible that this immunity may be lost at times, but it is seldom the case, as it happens with typhus, small-pox and scarlet fever, which may be had by a person who has had them.

(7) The vaccine of Jenner against small-pox and others which science has discovered, authorize us to look for the one that will prevent the yellow fever. The inoculation against this fever which Dr. Manuel Carmona y Valle has practiced with success should be tried on a large scale, in an uniform manner, in order to be able to find out if they are efficacious. If this experience confirm it, then they should be made compulsory in the countries where the fever reigns. If they should not prove worthy, then the inoculation of blood serum, as proposed by Dr. Sternberg, from persons enjoying immunity, should be tried on a large scale and in an uniform manner.

(8) The purification of the drinking waters used by persons who have to expose themselves to contact with the disease, should be recommended. The purification of the water used on board the ships leaving or calling at infected ports should be proposed.

(9) The sanitation of the places which are yellow fever centres should be done at once.

(10) To prevent, by means of sanitary police measures, the importation of fever into places where it can be developed.

How Shall Our Lepers be Cared For? By Dr. Benjamin Lee, of Philadelphia, Pa.

He said the State Board of Health of Pennsylvania, and the Board of Health of the city of Philadelphia have had some unpleasant experiences with lepers which had led both of these bodies to appeal to the general government to establish a colony or colonies, where these unfortunates might be provided with the comforts of home and medical care and nursing, and at the same time might cease to be a menace to the health of those with whom they were thrown in close contact. The United States had only gone so far as to make the affection quarantinable at the sea coast and to order those found suffering from it on arriving vessels to be at once returned to the ports from which they came.

Dr. Manuel Carmona y Vallé, of Mexico, contributed a paper on *Yellow Fever*.

Papers were also read by Dr. Louis E. Ruiz, of Mexico, on *Typhoid Fever in the City of Mexico*; *Some Reflections on the Infection and Contagion of Typhus Exanthematicus*, by Dr. Ramon Icaza, of Mexico; *Registration*, by Dr. S. W. Abbott, Wakefield, Mass.

Dr. John H. Rauch, of Chicago, Illinois, introduced a resolution to suspend immigration until the epidemic of cholera was over, which, after some discussion, was referred to the Executive Committee.

The American Public Health Association elected the following officers :

President: Dr. E. P. La Chapelle, of Montreal.

First Vice-President: Dr. Manuel Carmona y Valle, of Mexico City.

Second Vice-President: Dr. J. N. McCormack, of Bowling Green, Ky.

Treasurer: Dr. Henry D. Holton, of Brattleboro, Vermont.

Permanent Secretary: Dr. Irving A. Watson, of Concord, N. H.

Place of Next Meeting: Montreal, Canada, October, 1894.

NOTE.—Although the gathering was denominated an International Congress of Public Health, very few outside of the members of the American Public Health Association contributed to the proceedings. The bulk of the work was done by the members of the American Public Health Association.

After drafting, introducing and adopting resolutions of thanks, the President declared the Congress adjourned.



This department is designed for the description of improved Sanitary Appliances and Medicinal Preparations introduced by patrons of The Annals. The matter is not paid for, nor can it be classed as advertising. But as the information is necessarily obtained from those who offer the appliances for sale, it is proper to say that the manufacturers, rather than ourselves, are responsible for the statements made.

How to be Charming.

To be beautiful is a natural desire of the feminine heart, and while this is not possible in every instance, yet every intelligent woman may make herself charming. Helpless, doll-baby beauty is far below par at the present time—and why should it not be?

The average school-girl of to-day knows more of physical culture and the laws of hygiene than her grandmother ever knew. Good health, a fine physique and personal cleanliness are the chief factors in making a woman irresistible. It has been said that the secret of the "Jersey Lily's" power lay in the exquisiteness of her person; nothing was neglected, from the rosy finger-nails to the fragrant strands of her silken hair. Ladies are not slow to understand these facts and to supply their toilets with all the subtle accessories that help to work out such magical results. One of the most essential articles for this purpose is Listerine—in fact it is indispensable. Its formula is composed entirely of antiseptic properties, making it invaluable as a disinfectant.

It is a delightful dentifrice; it cleanses the teeth thoroughly, hardens the gums and leaves the breath pure and sweet. A little Listerine added to the bath keeps the skin soft and velvety, and the aroma it imparts clings daintily to the person, suggesting the odor of wild thyme. Its mission is to cleanse and purify, and to add that delicate finish so necessary to a lady's toilet.

The Therapeutic Merit of Combined Remedies.

The following excerpt from an article under the above caption, in the *Virginia Medical Monthly*, by Stephen J. Clark, M.D., No. 66 West Tenth Street, of New York plainly outlines the useful combination of two leading remedies in materia medica:

"Binz claims specific antiseptic powers for quinia; other writers are in accord with him on this point, and report good results from large doses in septicæmia, pyæmia, puerperal fever and erysipelas. It is a germ destroyer of the bacilli of influenza (la grippe). A full dose of quinine and antikamnia will promptly relieve many cases of this disease. In the gastric catarrh of drunkards this combination is valuable. Quinia is a poison to the minute organism, sarcina; and antikamnia exerts a soothing, quieting effect on the nerve filaments. A full dose of antikamnia and quinia will often arrest a commencing pneumonia or pleuritis. This combination is also useful in the typho-malarial fever of the South—particularly for hyperpyrexia—both quinia and antikamnia, as previously said, being decided fever reducers. The combination of antikamnia with quinia is valuable in the racking headache, with high fever, attendant upon malarial disorders. It is likewise valuable in cases of periodical attacks of headache of non-defined origin; of the so-called 'bilious attacks;' of dengue; in neuralgia of the trigemini; in that of 'ovarian catarrh;' and, in short, in nearly every case where quinine would ordinarily be prescribed."—*New York Medical Journal*, November, 1893.



COMMUNICATIONS.

Sanitary Notes and Beams.¹

BY ALBERT L. GIHON, A.M., M.D.,

Medical Director, United States Navy.

"And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?"—St. Luke vi: 41, 42.



THESE words of the Teacher of Humanity, which "the beloved physician" of the first century has recorded, are an appropriate text for the opening address in the important section with whose conduct I have been charged in this congress.

Time was—and that no long time ago—when Hygieia, the neglected Cinderella of the medical family, slunk unnoticed among renials; now that she graces the *salon*, her proud sisters caress her, and suitors court her favor. As an old admirer of this fair mistress, whose colors I have worn through youth and manhood, I may be pardoned the personal exultation that I have lived to see her suzeraine.

The ascendancy of hygiene has greatedened and glorified medicine, without dimming the lustre of any other branch; but though her cult is established, her mission has not ended with the recognition of her supremacy and the faithful following of her own ilk.

¹ The presidential address read before the Section in Hygiene, Climatology and Demography, of the First Pan-American Medical Congress.

To-day she turns to the people and their rulers, outside the medical fold, and demands the place in their councils that is hers of right. A makeshift share in the administration of the sanitary interests of the country has been grudgingly allowed, but the inexorable demands of modern enlightenment cannot be satisfied until the conservator of the public health shall sit a peer among the rulers. The minister of war may build mighty engines for destruction and defence, and muster vast armies and navies, which disease can disperse with a weapon so tiny that the eye cannot discover and no mere military expedient antagonize. The minister of finance may fill his treasure houses with gold and silver by the ton, which can buy human souls, honor, virtue, independence, everything but the boon of health, God's free gift to man, through which alone he can be like his own glorious image. Commerce, agriculture, manufacture, fishery, mining, and all the industrial occupations of the human race, which are now the objects of the intelligent supervision of cabinet ministers, who are grand masters of political economy and social science, cannot thrive without vigor of human blood and brains and brawn, which are the machinery of these occupations; yet until this decade it has not been thought that the intelligent supervision of a grand master of the divine science of medicine was necessary to preserve the vigorous health of the community, without which even these other ministers can themselves only imperfectly perform their own offices of administration.

When I entered the service of the government of the United States as an officer in the Medical Department of the Navy, nearly forty years ago, with a minimum of experience and a maximum of enthusiasm and an exalted opinion of the dignity and responsibility of my charge, which a lifetime has only intensified, I was astonished at the total ignorance of sanitary provision then prevailing in the naval service. Medical officers were curtly reminded that their opinions and advice would be asked when desired; their protests at the acts that filled the hospitals and mortuary lists were contemptuously unheeded; they were reprovved for officiousness and punished as insubordinate; disabled sailors and marines were discharged, and their places and those of the dead were filled without regret or remorse, but with the shameless boast that "if men die we can ship others," like the Netherland commodore, some of whose crew had been killed by the careless firing of a shotted saluting gun, who accepted the apology for the

accident with the nonchalant remark: "Dere are plenty more Dutchmens in Holland."

The battleships and cruisers of modern navies are not more unlike the brigs and sloops of war of forty years ago than are the cleanly, well-fed, comfortably clad and cared-for enlisted men, who go on shore daily, subscribe for newspapers, and write letters—a different race from the begrimed and degraded "shell-backs," who were ordered to their work with curses and punished with brutality for offences which neglect and ill-treatment had incited. The naval and military establishments have considered the beam in their own eyes, but civil authorities are still purblind to the necessity for organized intelligent sanitary supervision and direction, and grope for succor only under the flashlight of a pestilential visitation. The following from a recent editorial in an influential journal is pertinent: "Whether cholera has or has not made its appearance at Chester, which is practically one of the suburbs of Philadelphia, it is certain that the conditions reported to exist there are in the highest degree favorable for the introduction and spread of that disease. All accounts represent the neighborhood in which the alleged cases occurred as filthy beyond description, and occupied by a class of persons who pay no attention whatever to the laws of health or personal cleanliness. Of course, the country now has the pleasant assurance that the place is to be thoroughly cleaned and effectively quarantined; but why were not the steps necessary for the protection of the public health taken before the resulting disease, whether cholera or not, had gained such a footing that already five persons have died from it? The time to lock the stable-door is before the horses housed therein are stolen, and the way to treat contagious diseases is to prevent their appearance, and not wait for them to gain a foothold and then try to stamp them out."

The Secretary General has announced that the proceedings of this section and its congener, the Section in Marine Hygiene and Quarantine, will constitute a special feature of this congress. It is therefore incumbent upon us, before adjourning, to declare very positively the opinion of the members of this section, experienced, practical sanitarians from every country of the Western Hemisphere, that the interests of the public health must be intrusted to a department of the government especially charged with their administration, with equal independent executive authority as given to other national departments. Temporizing

legislation under the spur of emergencies does not befit this age. As the enlightened physician seeks to prevent his charges becoming ill, so should the guardian of the public health be able to forestall these emergencies, whose pecuniary cost, in money expended and wasted, in trade paralyzed and diverted, in labor and its wages lost by the sick and terrified and dead, in a single epidemic, exceeds that of maintaining an efficient sanitary service for the whole country for the whole year.

The fault of the medical profession has always been its lack of bold assertion of its rights; but it can no longer hesitate to declare to trade and commerce and agriculture and manufacture that the health and vigor which are essential to posterity cannot be secured by their own unskilled, uninformed efforts. They must learn, as the military services have learned, that powerful armies and navies are the results of able and untrammelled medical departments. It is as unwise to confide the care of the national health to a financier, however astute, as to expect a post-master-general to understandingly control a bureau of agriculture, or a fishery commissioner to best administer the affairs of the public schools, and an attorney-general to direct the mining industries. The health of a nation is a national consideration, involving international co-operation. There should be no priority nor clash of sectional interests. State lines are not respected by epidemic intruders. No State barrier can be so defensive and impenetrable that the toxiferous germ cannot pass through. The precise form of administration may be left to legislation, the indispensable requisites being that it shall be national, that it shall have parity of voice and influence in the national councils, that it shall have independent executive authority under the limitations common to other departments, and that it shall be intrusted to educated and experienced medical men, who alone are competent to assume its responsibilities.¹

I have not wandered from my text in thus pleading for a national public health establishment. Spasmodic tentative provisions in emergencies are nothing but attempts to discover *notes* from abroad when the *beams* at home should first receive consid-

¹ These propositions were unanimously adopted, in the form of a resolution, in these terms, by the conjoined Sections in Hygiene, Climatology and Dermography, and in Marine Hygiene and Quarantine, and reported to the general session of the Congress, by which it was referred to the International Executive Committee, which returned it with its indorsement, and direction that it be transmitted as the voice of the congress to the executives of all the countries represented therein.

eration. To parallel further and in another sense, the scientific tendency of the day is literally toward mote hunting through microscopes, instead of using our human eyes upon visible abominations. The sanitarian, official or amateur, need only look about him to be appalled at the spectacle of indifference of rich and poor, high and low, to dangers far greater than any from cholera microbes, which confront them every hour; and it may be worth our while to indicate some of these beams in our own eyes, which we complacently refuse to see, while we magnify the motes on our horizon.

The preventable disease which kills more of the human race than cholera and yellow fever together, and in its ordinarily slow process of killing lessens the productive power of a community, directly by the enfeeblement of its victims and indirectly by its demands upon members of households and eleemosynary institutions for the care of these chronic invalids, tuberculosis, is tolerated with as little concern as the Mongolian exhibits for small-pox, or the creole for yellow fever and malaria. The consumptive, whose traits no professional acumen is required to recognize, frequents our crowded thoroughfares, sits beside us in unventilated street-cars and at the hotel table, occupies Pullman sleeping berths, and shares the steamship stateroom, wholly unrestrained, and innocently ignorant that he or she may be sowing the seeds of disease among delicate women and children. Any one may verify this who uses his eyes for the purpose along the railway and coastwise steamer routes to our invalid resorts. Within a twelvemonth, on my way to Mexico by rail, I was a fellow-passenger with two invalids in the advanced stage of phthisis, *en route* for San Antonio, one of whom occupied the opposite berth, and the other one diagonally across the car, so that I could see and hear them coughing and expectorating, with only such attention as well-intending but unskilled relatives could render. They had no vessels for receiving their sputa, which they discharged in their pocket handkerchiefs, to be scattered over pillows, coverlets, and blankets. They left the car in the morning, and I saw those same berths—it is true with change of linen sheets and pillow-cases, but with no change of blankets, mattresses, or pillows—occupied that very night by other travellers, who were thus subjected to contact with a pathogenic microbe far more tenacious of life and power of evil-doing than the dreaded cholera spirillum. One has only to sit in a crowded

street-car on a winter day, and watch the clouds of respiratory steam circling from the mouths and nostrils of the unclean and diseased into the mouths and nostrils of the clean and healthy, as the expiratory effort of the one corresponds with the inspiratory act of the other. The road is short, but straight and sure, from vomica and mucous patch to the receptive nidus in another's body. Who that has ever had forced upon him an aerial feast of cabbage, onions, garlic, alcohol, tobacco, and the gastric effluvia of an old debauchee, can doubt that aqueous vapor can transport microscopic germs by the same route? Not long ago I travelled by sea from New York to Charleston, and for two nights was cabined with some twenty consumptives going to Florida. The air was chilly, and they huddled around the stoves, and fearfully and fearlessly closed doors and windows, until the atmosphere became stifling and surcharged with their emanations and the dried sputa which they ejected on every side. It was comparatively easy to escape during the day by staying on deck, and I slept with my stateroom windows wide open, but the curtains, carpets, pillows, and mattresses had been saturated by I know not how many expectorating predecessors. I have visited fifty small-pox cases a day, have gone through yellow-fever wards, and stood by cholera bedsides, with far less apprehension than I experienced on that trip, yet it was one taken by many thousands of people, who would have been terrified to know that there had been a case of cholera within a mile of their homes. Recall in your several experiences the instances of members of a family who have occupied the same chamber and bed with a gentle and beloved aunt or sister, and those of tuberculous husbands or wives, who have become ill like them with pulmonary phthisis attributed to everything but the manifest cause.

In former years I preached a crusade against another virulent communicable disease, in the interest especially of innocent and helpless women and children, and for a time I was gratified to find that husbands and fathers began to realize, from the numerous indisputable instances of innocent infection I was able to report, that syphilis might be, as it had been, contracted from combs and brushes, and rough-edged drinking-vessels in hotels, sleeping-cars, and boarding-houses, from pens, pencils, and paint-brushes that had been held between diseased lips, from dirty old bank-notes, from street-venders' toys, from a lover's kiss, a stran-

ger's caress, or a nurse's ministrations. Supported by an array of cases of infected children, young girls, and elderly men and women, the committee of the American Public Health Association, of which I was chairman, advocated the enactment of a law, placing venereal disease in the category of other communicable affections, and punishing its transmission as a misdemeanor; but that there were too many of the self-righteous blind to these beams in their eyes, who thought it wiser to seek to exterminate by ignoring its existence, and never uttering the name of a disease that has done more harm to mankind than all the diphtheria, typhoid, small-pox, measles, and scarlet fever, which are so carefully isolated, and their statistics so regularly collected and promulgated—a disease that travels with the missionary to Asia, Africa, and the Pacific, and decimates bodies faster than he can whiten souls.

I do not expect that all who have eyes will see as I do, or, having ears, hearken to what I say. The idle and perverse generation of the first century will have its following in the twentieth, and men and women will continue to do the insanitary things they ought not to do, and leave undone the sanitary precautions they ought to take, despite our warning, our imploring, our advice, or our denunciation. However benevolent and beneficent the hygienist's aim, his unappreciated, unrequited, and often unprofitable labor is enough to deter him from what has been derisively described as only an effort to procure the survival of the unfit, and thus thwart nature's own attempt to rid the world of them. He encounters another obstacle to success as aggravating as the disbelief in the necessity for his work. The authorities listen to his warnings, and then employ their own perfunctory and superficial methods of protection. Told that absolute cleanliness is the fundamental fact of sanitation, street-cleaners are set at work brushing the surface dirt into little heaps, which passing vehicles again distribute, or the winds carry into the open windows of adjacent residences. The refuse of the household is deposited in vessels on the sidewalks of crowded thoroughfares, to be emptied after a time into collecting carts, from which clouds of dust envelop passers and circulate back into the houses—*living* dust, for Manfredi found an average of 761,521,000 microbes to the gramme of the street dust of Naples, from which he cultivated pus, malignant œdema, tetanus, tubercle, and septicæmia. Swarms of flies feed on the

decomposing contents of exposed garbage-pans and buckets, and carry their tiny germ-laden booty into the butcher-shop of the poor and the kitchen of the millionaire. Who can dispute, if the hair of a Newfoundland dog could transport yellow fever to a distant Mississippi town, and a newspaper printed in an Ohio village where small-pox was raging could fatally infect a United States consul in a foreign port where the disease did not exist, that a cloud of dust, a swarm of flies, or a single fly—as Sawtschenko, Simmonds, and Sternberg demonstrate—can disseminate cholera and become a focus of infection, which would have been impossible had ordinary care been exercised in preventing the exposure, and promptly destroying the discharges and excreta of those already sick? Cities are reported clean whose sanitary inspectors have merely walked through crowded tenements, a hundred or more a day, and been satisfied with external evidences of brush and broom, leaving carpets and rugs unlifted; pieces of heavy furniture, with the fluff of years behind and beneath, unmoved; and closets, cupboards, pantries, store rooms, attics, and cellars undisturbed. The cellars of our great cities—and I speak with personal knowledge of many in New York, Brooklyn, and Philadelphia—are greater abominations than even filthy living apartments. The *New York Herald*, of the 8th of August, narrating the death of two children by falling from a window on the fourth floor of a tenement at 204 West Sixty-first Street, said: "To get at the bodies of her children the frantic mother had to go through the cellar of the house. There she waded through indescribable filth, almost knee deep, to where her children lay, when the foul odors overcame her and she fainted." It added: "The sanitary superintendent issued an order that the cellar must be cleaned out within twenty-four hours." Do you believe that it was the only one of its kind that needed cleaning? No city can be accounted clean until its ordinances require every cellar door to be widely opened to sun and air—that royal pair of germicides; every cellar to be emptied of its refuse; every cellar wall and ceiling to be scraped and whitewashed; every cellar floor to be taken up if rotted, and sprinkled with lime if uncovered—a tedious and expensive process; but effective sanitation, costly as it must need be, is cheap beside the outlay of a single epidemic. There are underground foulnesses in all our great cities of which they should be rid at any cost, as where rag-pickers and bone-gatherers collect their

filthy stores, and Italian street-corner fruit-sellers keep their decomposing bananas, grapes, and oranges, till, rubbed off by dirty pocket handkerchiefs, they are exposed for sale, glistening after their repulsive polish with impure saliva. If some mote-hunter, loath to see so huge a beam, chooses to find solace in disbelief, I might be able to shock him by declaring that I have seen the figs he munches unconcernedly, flattened in their pretty boxes, in a country where syphilis reigns, by questionable thumbs moistened by equally suspicious saliva. Shall I, while revealing insanitary horrors, dare lift the sweeping train of the fair promenader, fashioned after that of women in other countries who never walk upon the streets, and show the nasty mess of spittle, excreta, mud, and dust she gathers from the sidewalks upon her white skirts and silk stockings? She will not believe me; but the bacteriologist, who scoops the mud from between the cobblestones of the streets to find it swarming with microscopic life, can gather as rich a harvest of microbes from these same dainty undergarments.

Nor are these the only beams we overlook in our search for motes. Dr. Graham, bacteriologist of Starling Medical College, in response to an official inquiry by a member of Congress, reported that he was able to obtain thirteen colonies of two kinds of bacteria from one dirty, worn bank-note, and the *Medical Record* of January 21, of this year, states that a British bacteriologist discovered 19,000 microbes, including those of tuberculosis, diphtheria and scarlatina, vegetating upon a single note.

Other harborers of morbid germs are the textile fabrics employed in the furnishings of street-cars and stages, which the chairman of the sanitary committee of the New York Board of Health reports as "a menace to public health by reason of their continued exposure to uncleanness and infection from the clothing of diseased and filthy passengers," which, like their grimy bodies, may be foul with the sputa of diphtheria, tuberculosis or syphilis, the desquamations of scarlatina, measles or erysipelas, the emanations of typhus or the alvine discharges of cholera or dysentery. A commendable league of zealous ladies, who are seeking to prevent the abominable practice of expectorating in public vehicles, induced a few car companies to display placards to the effect that "Gentlemen are requested not to spit on the floor," but these appeals, intended for beasts who were never gentlemen, were hung in inconspicuous places or covered by other notices, and the

spitters continue to discharge their syphilitic and tubercular sputa on the floor mats, to be taken up on ladies' petticoats and carried to their homes. The spitter, and the other beast who voids his impure nasal secretions where it suits him, are largely responsible for the spread of influenza, for, according to Pfeiffer, the discoverer of its bacillus, "its contagium is found in the moist secretions of acute cases in the discharges from the nasal and bronchial mucous membranes."

Further detail would be out of place in an introductory address to this section. Let it suffice to point to the fragile spirillum of cholera which we are exorcising by "bell, book and candle," as illustrating the dreaded *motes* of my text, and to the sturdy, robust bacillus of tubercle as the *beam* we will not consider. "Cholera," says Ernest Hart, "can only be drunk and eaten. It cannot be caught and breathed;" but the tubercular mischief-maker, who finds the ever-open door of the respiratory passages his readiest approach, may also enter at any or all the orifices of the body. Among 1000 autopsies, Osler found 275 with tuberculosis; among 8873 patients in the surgical clinic at Wurzburg, one-seventh (1227) were tuberculous; the necroscopic statistics of Harris and others "show that one-third, perhaps over one-half, of the people who live to middle age have some form of tubercular infection;" and Dr. Williams, of Johns Hopkins Hospital, estimates that tuberculosis of the female generative organs is four times more frequent than generally supposed.¹ Can any more obvious method of direct infection in these cases be imagined than the trailing skirts of women gathering tubercular sputa from the pavements?

The sanitary inspector is destined to become the most important agent of future civic administration. The perfunctory burning of a pan of sulphur in a diphtheritic chamber, the sprinkling here and there of a solution of corrosive sublimate, or the substitution of the sweeter scent of thymol, pinol or some newer "ol" for the foul odor of the privy, will not then be the tolerated limit of his interference. All that science teaches and all that intelligence can devise will be exacted of him. A sanitary inspection will be a deliberate, painstaking, critical examination of nooks and corners and their disinfection, the flooding of the lairs of microscopic motes and the deluging of unsightly beams

¹ Medical Record, March 18.

with those unstopped, unpatented, inexhaustible germicides—air and sunshine.

Coincident with the approaching Eleventh International Medical Congress at Rome, and its fitting complement, there is to be an exposition of medicine and hygiene, and significant of the share accorded sanitary science in a medical congress representing the highest modern professional attainment, it will be noticed that of the *ten* classes which, in their *ensemble*, make up the exposition, *five* are exclusively hygienic,—to wit: (4) plans, models and *materiel* bearing on school management and sanitary civic organization (*riordinamento urbano*); (6) plans, models and *materiel* for hygienic constructions; (7) apparatus and furniture for hygiene uses in the interior of common dwelling-houses and public offices on every scale; (8) *materiel*, appliances and accommodations for the practice of personal hygiene; and (9) plans, models and appliances for the hygiene of the working classes. Three are partly hygienic,—to wit: (1) apparatus, *materiel* and plans of buildings for scientific and technical investigation in therapeutics, biology and hygiene; (3) articles and appurtenances requisite in salvage service and in *assistance publique*; and (10) books, atlases, photographs and such like recently published, and having reference to the medical, biologic and hygiene sciences. *Two* only of the ten are exclusively medical and surgical,—to wit: (2) apparatus, instruments and *materiel thérapeutique* in the various departments of medicine, and (5) plans, apparatus and furniture for the purposes of the divisional surgeon in cities. Additional to these, special classes are devoted to hydrology and balneotherapy, and to the Italian Red Cross Society, both of which are practical outcomes of sanitary endeavor.

I do not forget that climatology and demography, as well as hygiene, are within the purview of this section; but what is climatology but applied hygiene, and what demography but the demonstration of the results among masses of people of sanitary or insanitary conditions? The climatologist is of necessity a hygiologist. The *materia medica* and *pharmacopœia* are not his text-books. Physical geography, meteorology, hydrology, balneology are his scriptures and gospels; the vivifying light, invigorating air and healing springs and waters his armamenta—his anodynes and hypnotics, his roborants and eutrophics, his alterants and excernments. The high professional standing of the American Climatological Association, one of the constituent bodies

of the Congress of American Physicians and Surgeons, and the distinguished climatologists who are with us to-day and who are conspicuous in every international congress of hygiene, are evidences of the place in medicine of climatotherapy, the practical end of medical climatology—that broad specialty which robs so many graves of untimely victims and makes so many, heretofore without hope, able, if not to take up their beds, at least to get out of them and walk. The field of the climatologist is as broad as the habitable surface of the globe—in the high altitudes of Colorado and the Alps; in the odorous pine forests of Norway and the Carolinas; on the seashore or upon the wide waste of waters and their islet oases swept by ocean breezes.

Our American vital statistics are not yet piled high enough to form the foundation for a substantial superstructure of demography. The great caldron in which we are mixing Celts and Saxons, Semites and Aryans, with a seasoning of syphilis, tuberculosis and insanity, is simmering with what ultimate homogeneity can only be conjectured. When immigration was a tiny stream, however muddy and noisome, poured into a rapid river of pure water, it was soon lost in the crystal fluid; but now that huge sewers are discharging their fetid pestilential torrents into a placid lake that has no outlet, the lake itself becomes turbid and unclean. Already in the *culs-de-sac*, which are nearest the open mouths of these foul sewers and receive their floating scum—the prisons, reformatories, almshouses, insane asylums and hospitals—this filthy, debased and diseased foreign element is ascendant, and our demographers have a simple task in representing its volume by numerical statistics. Dr. Frederick H. Wines, the distinguished compiler of this portion of the census of the United States for 1890, demonstrates by the indisputable evidence of figures that while the foreign-born constitute only 17 per cent. of our total white population—in round numbers about one-sixth—yet they furnish over half of all the paupers in the almshouses of the country. It is evident that the traits of the Saxon are disappearing from our national complexion, and if the proper solution of the negro question be, as suggested by certain prominent Afro-Americans, to bleach it out by admixture, we may expect the hue of our descendants to be decidedly tawny.

The most zealous demographers of this decade are the French, who have been spurred in their statistical researches to discover the causes of the too evident depopulation of France of its native

races ; but are we not again refusing to consider the beam in our own eyes in not giving heed to the operation of similar conditions in our own country? Dr. Billings announces that our birth-rate has fallen from thirty-six in a thousand inhabitants in 1880 to thirty-one in a thousand in 1890. The twenty to thirty children of our ancestors, the dozen or more of our great-grandmothers, have dwindled progressively to five or six, then to three or four, until to-day one or two or none represents the fecundity of the educated classes. *The Independent*, referring to New England Puritan life, says: "Large families abounded. According to Cotton Mather, one woman had twenty-two children and another twenty-three by one husband, and another was mother to seven-and-twenty. Sir William Phipps was one of twenty-six children of the same mother. Printer Green had thirty. Rev. John Sherman, of Watertown, had twenty-six children by two wives, the second spouse the mother of twenty. The Rev. Samuel Williard, first minister of Groton, had twenty children, being himself one of seventeen, as was Benjamin Franklin." The paragraphist who can now record the case of the woman of thirty-one at Cold Spring, who has become the mother of seventeen children in nine years, or that of the Georgia matron of twenty-five who rejoices in thirteen, has, in newspaper parlance, "a great find." The spectacle of impending maternity among our better classes is becoming more and more rare, and still more rare that of an infant nursing at its mother's breast. Only in the squalid quarters and *banlieues* of our great cities, where the English language is not spoken, among imported lazzaroni and the overflow of European ghettos, does the process of human incubation go on as God and Nature intended. The laws of creation are immutable, and one has only to look beneath the disfigurement of female dress to recognize the evidences of imperfect physical development—in stooping, unsymmetrical shoulders, in meagre limbs, in narrow pelves, and flattened busts. Dr. Otis exhibited at the recent meeting of the American Climatological Association, in illustration of diametric measurements of the thorax, the profiles of a number of female chests, which were supposed to be those of little girls, until he explained that they were the contours of nubile young women in Boston normal schools, like her whom Solomon bewailed in The Song of Songs: "We have a little sister, and she hath no breasts: What shall we do for our little sister in the day when she shall be spoken for?" My friend, Dr. Robert T.

Morris, of New York, has significantly called attention to the fact that 80 per cent. of all Aryan American women have rudimentary clitorides, and he asks if evolution is trying to do away with this organ in the degenerative changes characteristic of highly civilized varieties of the *Homo sapiens*, of which early falling hair, decaying teeth, weak mammary glands, and badly balanced eye muscles are other examples. Is the sexual instinct losing its potency as a maternal factor? Is marriage only a social office for the display of finery on the brides and bridesmaids and the entertainment of crowds of gaping strangers? Is the virgin wife best prepared for conception by months of preliminary sur-excitation and feverish anxiety, and is a fatiguing railroad journey the best prelude to an act which should lead to the inception of a human being—the incarnation of a human soul? Has the function of reproduction come to be regarded only as a bestial and undesirable concomitant of matrimony, and lactation its vulgar, indecent supplement, and is all this attributable to physical deterioration shown by the undeveloped or imprisoned *mentula muliebris* and atrophied mammæ, and how far is this the explanation of the diminished fecundity of the Aryan American woman? These are problems as interesting to our demographers as the depopulation of France, the disappearance of South Sea Islanders, the migration of Semitic and Mongolian races, and the effects of malnutrition of indigenes of Ireland and Russia.

But, gentlemen, I shall no longer trench upon time that belongs to you. I am highly gratified at your presence and thank you most cordially for your kind attention.

The remainder of the address was delivered in Spanish, of which the following is a translation :

GENTLEMEN, OUR FRIENDS AND COLLEAGUES FROM ABROAD:—Permit me, on the part of the members of this section from the United States of America, to tender you a most hearty welcome to our capital. Your long travel to this city bespeaks your interest in the occasion. It is no light boast that here, for the first time in its history, the medical profession of all America finds itself united in one great congress. It was about nine years ago that a number of Canadian sanitarians claimed the right as Americans to become members of the American Public Health Association, and it was my privilege as president of that body to receive them as such. The subsequent Transactions of that association show how loyal they have been to its tradition, how zealously they

have participated in its work, and with what dignity they have filled its highest offices. Two years later they carried the association into their own territory at Toronto.

In 1890 two distinguished representatives of the Superior Council of Health of our sister Republic of Mexico came to Charleston, and as Americans likewise knocked at the door of the American Public Health Association, returning the following year in such numbers and with such a hearty welcome from their Government to meet in their own capital, that their invitation was accepted, and the most successful meeting of that association—the twentieth in its history—was held in the ancient city of the Toltecs. To-day the roll of States represented in the advisory council shows Illinois, Massachusetts, and Tennessee, Ontario, Quebec, and Manitoba, Guanajuato, Querétaro, and Zacatecas in one fraternal union..

What sanitarians have done in that association, which bears the escutcheons of its three constituent countries side by side, this congress aims to accomplish for the whole profession of medicine in the Western Hemisphere, uniting its members in one brotherhood, whatever their race or language, and whether their homes be on the frozen shores of the Arctic or the hillsides of Tierra del Fuego, among Greenland's icy mountains, in the archipelago of the West Indies, or amid the perennial gardens of Hawaii.

Physicians and brothers from the United States of all America, welcome to this your capital, which, in that sweetest language spoken by human tongues, *mongamos a vuestra disposición*.

The Dangers of the Barber-shop.

The report of a case of tuberculosis of the bearded face will direct attention to the danger of transmission of tuberculosis through the intermediation of the instruments used by the barber. To prevent such an occurrence each individual should have a separate brush and cup and napkin and razor. If one razor is used in common it should not again be used before having been placed for a short time in boiling water and dried, while persons who present themselves to the barber with diseases of the bearded skin should be advised to consult medical men.—*Medical News*.

State and Municipal Control of Infectious and Contagious Diseases.¹

BY JOHN WINTERS BRANNAN, M.D.,

Physician to Bellevue Hospital, New York.



THE subject of public health has engaged the attention of lawgivers from the earliest ages, but it is only during the present half-century that much has been accomplished in the way of effective sanitary legislation. England, profiting by her experience with cholera, was the first nation to recognize the full importance and necessity of public hygiene. The Public Health Act, enacted by Parliament in 1848, was the beginning of a series of measures which have given that country the most perfect sanitary code in the world. It is not to our purpose to review this legislation, but it may be well to note briefly some of the results obtained by it. The average annual death-rate throughout England and Wales during the twenty years previous to 1870 did not vary greatly from 22.5 per thousand of the population, and it was estimated by Mr. John Simon that 125,000 persons died each year of diseases due to defective sanitary conditions. Although Simon's figures were thought by some to be exaggerated, they nevertheless had great weight in persuading Parliament to adopt the reforms recommended by him. During the succeeding twenty years improvements on a large scale were carried out in all the large cities and towns throughout England and Wales, with the result that in 1889 the annual mortality had fallen to only 17.9 per thousand, thus more than justifying the calculations of Simon. The life of a human being has been estimated by Farr to represent a capital of \$800. At this valuation the 125,000 lives now saved in England are equal to a money saving of \$100,000,000 annually.

The work accomplished in England has attracted the attention of other European countries, and they have all attempted to imitate her methods, but not all with the same degree of success.

¹ Remarks before the Section of Pediatrics of the New York Academy of Medicine, December 14, 1893, during a discussion on scarlet fever.

Sanitary laws must of necessity restrain the liberty of the individual, and can, therefore, never be thoroughly successful unless their provisions appeal to the intelligence and honest conviction of the public. The fact that in England these laws are made by the people themselves through their representatives in Parliament aids much in securing their thorough enforcement. In our own country the conditions are equally favorable, except that here the power to enact such laws rests with the State and not the national legislature. The Supreme Court of the United States has decided¹ that all those powers which relate to merely municipal legislation, or what may be called internal police, are not surrendered to the general government; that consequently, in relation to these, the authority of each State is supreme and exclusive within its boundaries. Among these powers are inspection laws, quarantine laws, and health laws of every description. The State, having thus all the power necessary for the protection of the health of the people, may delegate to corporations organized for local self-government the power of legislating with regard to such matters. The power remains, however, at all times subject to the control of the State, and may be resumed or cut down by the legislature at its discretion.

Municipal corporations are then to be considered simply as agents of the State, organized for local government. As the preservation of the lives and health of the people is one of the chief purposes of local government, reasonable regulations in relation thereto have always been sustained as being within the authority of these corporations. Municipal regulations must naturally interfere in some degree with the free exercise of private rights, but should not do so unnecessarily. As this so-called police power is conferred for the purposes of self-defence, it must not be carried beyond what is necessary for protection.

In the State of New York and in many other States of the Union, the legislature makes a distinction between the larger and the smaller municipal corporations or cities, generally in the direction of giving larger powers to the former. The powers to make sanitary regulations for New York City are contained in the Consolidation Act, and are conferred directly upon the Health Department. In considering the means employed by the Board of Health to control infectious and contagious diseases, I shall

¹ Parker & Worthington : Public Health and Safety, page 3.

limit myself to those measures which bear most directly upon the subject. Pure food, pure water, pure air, and generally good sanitary conditions are, of course, indispensable and must be striven for at all times, but something more than these is called for to check the spread of contagious disease. The measures I refer to are compulsory notification, isolation and disinfection. Under the head of isolation I include the power to remove the patient to a special hospital, if he cannot be efficiently isolated at home.

All of these measures are important, though perhaps not to the same degree. A law requiring the notification of infectious diseases is now in force in all the principal cities of this country, as well as in all the capitals of Europe. French physicians have always strenuously opposed the passage of such a law, maintaining that it involves the violation of professional secrecy. The Chambers, nevertheless, enacted the law about one year ago, and its provisions went into effect throughout France on the first of the present month. The opinion of the Paris Academy of Medicine was simply asked as to what diseases should be classed as infectious and contagious. There is a wide divergence of opinion and practice on this important point. In Chicago typhoid fever is not reported, in Philadelphia and London measles is not deemed worthy of notice, in other places whooping-cough is excepted, in others erysipelas.

This lack of agreement is probably due to the fact that there is still some confusion as to the exact significance of the words infectious and contagious. The old meanings no longer fit our present more definite conceptions of these terms, based upon the teachings of bacteriology, and yet it is difficult to use the old words without calling to mind the ideas formerly connected with them.

Dr. Prudden¹ defines an infectious disease as one which is caused by the invasion and reproduction within the body of pathogenic micro-organisms. According to the same authority, an infectious disease is contagious when the micro-organism which causes it can, under the ordinary conditions of life and by whatever means, be conveyed from the sick to the well in a condition capable of lighting up the disease anew. Dr. Prudden, however, insists upon the importance of recognizing the great difference in the degree of contagiousness which different diseases may possess.

¹ New York Medical Journal, 1892, Vol. LV, p. 421.

These definitions of "infectious" and "contagious" are generally accepted by bacteriologists at the present day. As thus defined, each term has its own special field of application. An infectious disease is the morbid condition produced within the body by the entrance of pathogenic micro-organisms. There is no limitation as to the source of the infection, nor is the possible communicability of the disease suggested. The term infectious does not look beyond the individual already infected. Contagious, on the other hand, has gained what infectious has lost. It now includes all modes of conveyance of infectious disease. It is no longer a question of the manner of transmission, whether by direct contact or through the air or by other carriers of infection. If an infectious disease is communicable to others by any means whatever, it is also contagious. Contagion presupposes infection, therefore all contagious diseases are infectious, but not all infectious diseases are contagious.

It is surely a great gain to have thus simplified the meanings of terms, but it is unfortunate that in simplifying them we have also changed them. To us, as medical men, it perhaps does not matter that we have taken such diseases as typhoid fever, cholera and tuberculosis, formerly called simply infectious diseases, and placed them side by side with small-pox and scarlet fever, diseases known to all as directly contagious by simple diffusion through the air. We know that there are degrees of contagiousness, using the word in its new and broader sense. But it is otherwise with our patients, who have not followed the steps by which we have arrived at our present understanding of infection and contagion.

I have discussed this question of nomenclature somewhat at length because it is especially important at this juncture that the public should understand what is meant by the term "contagious disease." Dr. Biggs, the pathologist of the New York Board of Health, has recently made an official report to that body, in which he advises that physicians practising in this city should be requested to notify the Board of all cases of pulmonary tuberculosis coming under their observation. I believe that the majority of physicians in New York will agree entirely with the spirit of Dr. Biggs's recommendation and will aid the Board of Health in carrying it out. But I also believe that there is a considerable proportion of physicians in the city who will be less willing to report the names of their private patients who are suffering with tuberculosis, if this affection is to be termed a contagious disease.

They know the alarm that enters a household when a disease is declared contagious, associated as it has been in the past with enforced isolation of the patient. I would therefore suggest the use of the word *communicable* in place of *contagious*, and not only for tuberculosis, but for all diseases of this class. Communicable expresses exactly what we mean and no more, whereas contagious produces a false impression, due to the former meaning of the word.

If the term communicable is adopted to include all those infectious diseases which are capable of transmission in any mode whatever, then contagious may still be retained, but restricted to its old use. It would then include, as a sub-class of communicable diseases, such diseases as the exanthemata, whooping-cough, and mumps, which are conveyed by simple contact, direct or indirect.

Lest some may think that this change of nomenclature is impracticable, I will call attention to the fact that the State Board of Health of Michigan has for years used the term "dangerous communicable diseases" for all diseases requiring official regulation in the interests of the public health. I do not know what reasoning or experience led that Board to the selection of this term, but it has served it well in the action taken by it some three months ago, when it resolved that hereafter tuberculosis should be included in the official list of "Diseases dangerous to the public health," requiring notice by house-holders and physicians to the local health officer as soon as such a disease is recognized. In this resolution the question of isolation of the patient is not mentioned. Its purpose is to secure to the health authorities knowledge of the location of each case of the disease, with the view of placing in the hands of the patient and his friends information which will enable them to prevent its further spread. Leaflets giving this information, and entitled "Restriction and Prevention of Tuberculosis," are distributed throughout the State by the Health Board. In these leaflets the disease is called communicable, and the mode of communication is clearly stated.

Although Michigan is the only State which has taken official action in the way of restricting tuberculosis, other parts of the country are also awake to its necessity. Two circulars, similar to the one I have mentioned, are published and distributed gratuitously, one by the Health Department of Providence, the other by the Pennsylvania Society for the Prevention of Tubercu-

losis. The language of both circulars is excellent, except that in both the disease is termed "contagious."

As we are about to follow the decided step taken by Michigan, let us in like manner call tuberculosis by its right name, a communicable disease.

I shall say but little regarding the other measures of restricting infectious disease, as they are to be fully discussed this evening by others. In the case of a purely contagious disease, such as scarlet fever, notification of the disease would of course be of little value unless it were followed by prompt isolation of the patient and disinfection of the premises at the termination of the illness. Under the conditions which prevail in New York it is seldom possible to secure efficient isolation of the patient at home. It is, therefore, very unfortunate that there exists in this city such a prejudice against removal of the patient to a contagious disease hospital. In London there are sometimes as many as three or four thousand cases of scarlet fever in the Metropolitan Asylums Board hospitals at one time. In that city even well-to-do people seek admittance to the fever hospitals, and many are turned away for lack of room. In New York, during the whole of the year 1890, only 324 patients were taken to the Willard Parker Hospital, a number too small to have much effect in restricting the spread of scarlet fever in the city. In Boston, also, it has been found that the disease prevails epidemically, or to only a slight extent, without much regard to the restrictive measures of the health authorities. But it is the intention, in both New York and Boston, to forcibly remove many more cases to the isolating hospitals as soon as the new buildings, now under construction, are completed.

In closing, I will again instance the experience of Michigan, in order to show what can be accomplished under favorable conditions by efficient isolation combined with disinfection. During the year 1889 there were 417 outbreaks of scarlet fever in that State. In seventy-two of these outbreaks, isolation and disinfection were both neglected, and the number of cases per outbreak was 16.78. In fifty-two outbreaks, both isolation and disinfection were strictly enforced, with the result of limiting the number of cases to 2.69 per outbreak. In many outbreaks one restrictive measure was enforced and the other neglected. In all such instances the spread of the disease was checked somewhat, but never to the same extent as when both isolation and disinfection were enforced.—*Medical Record*.

Milk.—Inspection and Regulation of Dairies.

BY FRANK S. HOUGH, M.D.,

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Inorganic Chemistry in the Department of Pharmacy, M. C. M. and S.



THE most important article of our food supply is milk. The very life, the health, the happiness of generations of people, living and unborn, depend upon this vital fluid. In these days of artificial diet, when mothers have not the Spartan constitution and vigor of days gone by, when a very large percentage of all the children, the world over, depend upon the cow, its health, and the wholesomeness of its product for their very life, the questions of regulating the manner in which milk is brought into our markets, the maintenance of a high standard of purity and detection of adulteration, and the most rigid and severe punishments for fraud and dishonesty, practised by dairymen, are matters of such importance that they should be second to none of the great economic problems of to-day.

In all of our great centres of population, the younger portion, consisting of children up to two or three years of age, are fed more or less upon cow's milk. Prepared foods, made by special processes from the cereals, and approximating more or less the nature and constituents of milk, are consumed in large quantities by the infant population ; but the proportion between cow's milk and all other artificial foods forming the source of nourishment to the children preponderates in favor of cow's milk. It will always be thus. Cow's milk will continue to be the most essential and most widely-used infant food, and it is necessary for us to keep watch of it from the very moment it leaves the udder until it is served up to form the baby's meal. In no other connection has the truthfulness of the old proverb that "cleanliness is next to godliness" impressed itself so forcibly upon my mind. The milk should be drawn from the cow in as nearly a clean condition as possible, but notwithstanding all our precautions, and our most absolute methods of cleanliness, some amount of hair and epithelial and other animal débris invariably enters the milk-pail.

In these times, when a microbe assumes the gigantic propor-

tions of a mountain to the eye of the modern student of medicine, it is almost ludicrous to witness the complacency with which he swallows his glass of milk which has come to him something after this fashion. The hired man gets up before daylight, lights his lantern and proceeds to the stable, wakes up his cow from her soft bed of excreta by a vigorous kick; then the hired man scrapes out the stable, sets himself upon his three-legged stool, and with those delicate hands, in the cracked recesses of which reside myriads of colonies of germs, wallowing in their cultures of filth both old and fresh, he proceeds to wash the teats, and this is the way he does it. He squirts a quantity of milk into his hands, and then besmears it over the teats and rubs it well in. This he repeats two or three times, until he has reached his low standard of cleanliness requisite, then he commences the milking process. The milk is discharged into the pail mainly by one stream from each orifice, but also by other tributaries; a few brooklets meander from the interior of the milkman's palm through the spaces between his fingers, and after well irrigating the fingers in the ungual regions, falls in gentle cascades, presenting a gradation of colors from terra-cotta to rich brownish black, so that the first pint or so of the lacteal fluid is anything but white and anything but clean. The more vigor expended in pulling the teats, the more epithelial scales and scabs of filth fall into the milk.

The straining process may now take place or be delayed an hour or so, according to the housewife's fancy. Of course, the longer it is delayed the more opportunity for the soluble portions of the foreign matter to become dissolved, and escape through the meshes of the wire or horse-hair strainer. Now, with several additions of various kinds of filth from the different manipulations to which it is subjected, the milk finally reaches your milk-pail in front of your residence as absolutely pure and fresh milk.

"Where ignorance is bliss, 'tis folly to be wise."

Milk is an ideal food for infants, and were it brought to market in a clean and wholesome condition, it would be a boon to the human race too great to measure or even estimate.

Not only is the matter of cleanliness a vital question, but the sanitary conditions around dairies and the presence or absence of contagious diseases are things that should be considered always. Of all the animal fluids, milk is the most susceptible of contam-

ination, because it is a great absorbent of noxious gases and foul odors. It is likewise an excellent culture medium for pathogenic microbes, and multiplication takes place rapidly, and the vitality of these germs is conserved.

The first great point in the sanitary regulation of the milk supply is the cleanliness of the cow and the cleanliness of all methods of extraction and manipulation from the time the milk leaves the cow until it is consumed. The sanitary arrangement of the stables, the preservation of the health of the milch cows, through the feeding of proper food and pure water, are equally important.

The sophistication practised by dairymen is a matter of lesser moment, but one which needs attention. Adulteration of milk by dishonest men is rather a negative sin as compared with the careless and ignorant accumulation of filth in the milk, which is a positive menace to the health of the community of individuals consuming it. Adulteration generally consists in robbing the milk of its cream, and the addition of water to the fresh unskimmed milk. Now and then a milkman with a chemical turn of mind backs up his dishonesty with a little refinement by adding quantities of sugar to correct the specific gravity, flour or starch to increase the opacity of the attenuated fluid, or a little coloring matter, such as ordinary whiting, to cover up the bluish color of the watered and skimmed product. Carbonate of sodium has also been used somewhat extensively to adulterate milk. The question as to whether or not milk has been tampered with, generally resolves itself into whether or not the cream has been wholly or partially removed, and whether or not water has been added. From time to time testing instruments have been devised, for the use of farmers, dairymen and consumers, by which an estimate of the total solids in milk could be readily and quickly ascertained, but these instruments in the hands of any but experts are of little practical value. From a mercenary stand-point adulteration is always in the direction of removing the cream, or reducing its percentage by dilution of the milk with water, and most of these instruments are for the purpose of estimating the amount of cream in a given quantity of milk.

The simplest, but at the same time the least trustworthy and efficient method, is by means of the so-called "creamometer," which consists merely of a simple graduated glass tube in which a measured amount of milk is placed, and the amount

of cream it throws off is read by the scale appended to the tube.

A less reliable test is what is called the specific gravity test. Fresh, unadulterated milk ranges in specific gravity from 1.029 to 1.033. The cream, which in fresh milk is distributed all through the fluid in little globules, by its presence makes the milk lighter than it would be if this fat were removed. The alkaline solution in which are dissolved the remaining solids, casein, lactose, etc., is heavier than water. From these facts it becomes apparent that skimming the milk makes it heavier. Now, water can be added to skimmed milk in sufficient proportion to lessen the specific gravity equal to the fresh milk, and the specific gravity test when used alone is of no utility whatever. Color tests, although subject to error, are more reliable. When the absence of any other coloring matter is determined, the opacity bears a direct relation to the percentage of cream present. I will not go into the various methods of testing milk, nor enumerate the several instruments. They are all more or less useful when they are not employed singly.

The most accurate results are obtained by a *quantitative analysis*, by which it is easy to determine the quantity of water and the quantity of *total solids*. The solids can then be separated into lactose, casein and inorganic solids.

It is not necessary to employ these methods of analysis on all occasions, but the inspector should be able to make them when it is advisable.

The most essential part of milk inspection commences at the dairy, where sanitary surroundings and the health of the milch cow are to be the *sine qua non* towards securing a wholesome and nutritious kind of milk. Since it is widely known that the cow is predisposed to consumption, tuberculous cows should be sought out and quarantined.

Wherever any contagious disease exists in the immediate vicinity of a dairy, the dairymen should be prevented from taking their milk to market until such time as the health officer shall deem it safe and prudent, and wherever the milkmen, milkmaids or other employees about a dairy are found to be uncleanly in their habits and duties in the extraction or handling of milk, they should be restrained from doing the work until they have thoroughly changed their methods for others of a more cleanly nature.

The milk should not be allowed to stand in the stables or in ill-ventilated cellars. It should not be exposed to the influence of gases arising from cesspools or privy-vaults.

Prolonged lactation of cows should be prevented, since the milk is less nutritious and apt to be from diseased cows. Old cows, where lactation has been prolonged, should be made to discontinue the function.

The health officer should regulate, to a certain extent, the quantity and quality of the food furnished milch cows. The water supply should be examined into with especial care. To sum up concisely, the utmost vigilance should be employed by the health officer to maintain a pure and wholesome quality of milk, and see that offenders are given the severest penalty of the law with such rigid impartiality as shall make good milk the rule rather than the exception.

Imperfect Development a Direct Result of Improper Food.

BY JOHN ELLIS, M.D.



FROM nothing nothing comes. If children are to have good teeth, bones and muscles, they must be fed on food which contains an adequate supply of nourishment for the above structures; otherwise they are half-starved and are quite sure to be troubled in after life with decaying teeth, contracted jaws, crooked spines and legs and delicate muscles. In an article in *The Tribune*, a few days ago, it was represented that the teeth of the English and American children and young people are becoming more and more defective. We have not to look far for the chief cause of the decaying teeth which often crowd the poorly-developed jaws of the rising generation.

To-day our children are fed largely upon bread, cakes, pie-crusts and puddings, made from the finest white superfine flour which can be ground or rolled and bolted from wheat and rye. A careful analysis of these grains shows that immediately beneath the hull lies the dark portion of the kernel, which is hard, firm

and very difficult to grind or roll into a fine flour, and more or less of it is quite sure to remain in contact with the bran, and in bolting the rest of it is mostly separated from the fine flour. Now, this dark portion, thus disposed of, contains in excess the very substances required to nourish the teeth, bones, muscles and brain, namely, the gluten and phosphates; whereas the central or white portion of the grain contains an excess of starch which is easily pulverized, and by bolting gives the superfine white flour. The superfine white flour is composed of an undue portion of starch, which, where in proper proportion as it exists in the grain, is useful for supplying heat and fat-producing material, but it does not contain enough teeth, bone, muscle, brain and nerve-nourishing materials to sustain animal life for any considerable length of time; consequently superfine white flour will keep in barrels and bags for a long time without being disturbed by insects, worms or must, whereas the unbolted meal will not keep for any great length of time without becoming unpleasant to the taste. Magendi, one of the ablest physiologists who have ever lived, demonstrated by experiments that animals fed exclusively upon the finest superfine flour died in a few weeks, whereas those fed on unbolted flour thrived. During the study and practice of medicine for over thirty years the worst case of scurvy I have ever seen occurred in a girl, five or six years old, who for some weeks would eat nothing but toast made from superfine flour bread. I only rescued her from death by requiring her mother to mix mashed potatoes with the flour from which her bread was made.

Imperfect development of the teeth, bones, muscles, brain and nerves is the inevitable result which follows if children are fed largely on superfine white flour cooked in any form, and deformity, dyspepsia and debility in after life. If parents care for the present health and development and for the comfort of their children in after life, they should never let any superfine flour or bread or cakes made from such flour enter the house where their children dwell. It is difficult to imagine the immense harm to the present and rising generation which is being done by the use of superfine white flour—and the whiter the poorer it is. It should be banished from use, and it is being banished steadily by intelligent and liberal-minded people who are not slaves to habit and fashion. I have known a man when travelling to walk a mile to get a loaf of Graham bread rather than to eat white bread. To those who have been accustomed to eat Graham bread, cakes, etc., white bread is tasteless and without substance and altogether unsatisfactory.

Wherever people live on unbolted wheat or rye flour or meal, they have good teeth, bones and muscles. I well remember when in Egypt in 1884, at Thebes, the little Arab girl who, with a vessel of water upon her head, ran over the sand, stones, rocks and hills as we rode upon our donkeys to visit the tombs of the kings, for she had splendid teeth, sparkling eyes and a beautiful and well-developed waist, symmetrical in form and graceful in every movement. On a visit to the house of our Arab dragoman or guide, to look at some curiosities which had been obtained from the tombs of the ancient Egyptians, we saw two women grinding at a mill and making the kind of flour which that young girl ate. There were two mill-stones, perhaps eighteen or twenty inches in diameter, standing in a tray, with an opening through the centre of the upper one for pouring in the grain, and at opposite sides erect handles. The women took hold of these handles and turned the upper stone around and around, and back and forth, and the flour or meal came out between the outer edges of the stones. I said to our guide, "We have not had a bit of good bread in Egypt, for at the hotels at which we have been stopping they think that they must furnish superfine flour bread for foreigners to eat. Now, I want you to make us a loaf of bread from that flour and bring it to our hotel to-morrow, and I will pay you for your trouble." He did so, and it was the best bread we had in Egypt.

It is wonderful to see the improvement in health, development and vitality which frequently ensues when delicate, sickly children, and even old dyspeptics, who have been living largely upon superfine flour and its products, are fed upon unbolted wheat or rye flour bread or pudding. But, if the stomach and bowels are weak from the want of proper nourishment, or if they are irritable or inflamed, then for a limited time, or until they gain strength and health from the use of this more nourishing food, it is necessary either to sift out with a coarse sieve the coarsest of the bran from the Graham flour or to obtain flour which has been ground from wheat which has been hulled before grinding, which can be had in some of our cities. If this caution is not heeded by those beginning the use of Graham or unbolted flour, it will not infrequently, in the cases named above, prove too irritating at first, and its use be abandoned and condemned; but for strong, healthy children and adults this flour, bran and all, is just right, as the Lord intended it.—*New York Tribune*.

Unhealthfulness of Illuminating Gas.

BY J. S. LEONHARDT, M.D.,
Of Lincoln, Nebraska.



I AM satisfied that consumers of coal gas, whether for lighting, heating, or other purposes, do not appreciate the danger attending its use. In support of this assertion, let the following case, with a few comments, testify :

Mr. A. B. C., aged 50 years, weight about 123 pounds, light hair, blue eyes, of slight stature, with full complement of symptoms of cerebral and spinal neurasthenia. He had been a sufferer for years from mental and physical debility, and about a year ago found it necessary to relinquish his occupation, that of manager of a large wholesale establishment doing an extensive business. All that I could do for him only kept him at about "customary par," with now and then a brief paroxysm of improvement. His family history showed no constitutional or other hereditary disease: his immediate and remote ancestors were robust and long-lived. His personal history offered nothing in explanation of his intractable condition. I concluded to carry the investigation even into his home life. Upon entering his residence an overwhelming odor of coal gas met me in the vestibule. He expressed some surprise at my behavior, said he did not notice it, had gotten used to it, etc. An examination of the different apartments in this abode revealed the following state of affairs: The rooms were on the ground floor and consisted of hall, sitting-room, parlor, two bed-chambers, dining-room, kitchen and bath; they contained eleven three-foot gas-jets, a gas parlor heater, a gas range in the kitchen. The daily consumption of gas averaged about 100 feet. There was no special arrangement for ventilation. The cubic contents of the entire floor equalled nearly 7600 feet, half of which was represented by the parlor and sitting-room. It occurred to me that I had found the laboratory in which the conditions were elaborated responsible for the unhappy condition of my patient, and I so informed him. In accordance with my suggestions, coal is now used in the kitchen, the parlor heater reposes in the wood-shed, and incandescent lights have taken the place of gas-jets. My patient is on the highway to recovery, and

his progress is so rapid that it is noticeable day by day. The importance of the subject will not justify me in dismissing it at this point.

Illuminating, or coal, gas is a heterogeneous mixture of gases, etc., resulting from the destructive distillation of soft coal, wood, oils, etc. The commercial product contains upward of fifty different ingredients, depending largely upon the material and the amount of heat used in its manufacture. The gases that concern us in the present article are carbon monoxide and, its resultant when burned, carbon dioxide. Carbon monoxide is present in coal-gas to the extent of from 5 to 9 per cent.; in "water-gas," from 12 to 16 per cent.; the remainder is largely hydrogen, free and in its carburetted form. Carbon monoxide is a most diffusible and deadly narcotic poison; the dioxide is not so toxic, but concerns us also because its proportion in the air has been adopted as the measure of its impurity. Carbon monoxide is without odor and is lighter than air; it is so diffusible that it will pass through the plates of a furnace when they are red hot. The objectionable features of all furnaces and open grates is, therefore, very evident, not only generating the noxious gas, but giving it easy access to rooms. The danger from this source is much increased by defective flues, which are altogether too common, but the most prolific source is, without doubt, coal gas. Carbon monoxide combining with the hæmoglobin of the blood expels its oxygen. So fatal is it to all forms of animal life that an atmosphere charged with 1 per cent. of it will kill a dog in less than two minutes; half that degree of contamination will destroy birds in a few minutes; plants wither and die quickly in such an atmosphere. While it is a slow-acting poison, it is nevertheless a very certain one. Inhaled in small quantities for a long time it produces only a feeling of weakness, loss of appetite, a dull headache, dry cough, and other symptoms that simulate those of malaria very closely. Taken in larger quantities it causes headache of an intense neuralgic kind, mental confusion, extreme exhaustion, and a severe form of bronchial irritation. Taken in toxic doses it kills almost instantly by causing spasm of the glottis, convulsions, coma.

Carbonic dioxide is also an inodorous gas, it is heavier than air, less diffusive than its congener, is irrespirable, and possesses poisonous qualities that are not simply the result of its having excluded oxygen. It is produced by the burning of carbon in the

air, by respiration, in fact, by all forms of oxidation, whether rapid or slow, in the animal or vegetable kingdoms. We are concerned here with its presence in our dwellings, as a product of combustion and respiration. An adult male in repose exhales about .7 cubic foot of carbonic dioxide per hour. This varies somewhat with age, being greatest between the ages of 25 and 32. An adult female exhales in the same time .6 cubic foot, and a child about .4 cubic foot. From this we might estimate that a mixed crowd would average .6 cubic foot per hour per head. Occupancy by one person of a room containing 3500 feet would raise the proportion of carbonic dioxide from four parts to six parts in 10,000 every hour, the latter amount being regarded as a contamination, while the former is about what exists in the outside air constantly. A common sixteen or twenty candle power kerosene lamp produces about as much carbonic dioxide as an adult man; a common three-foot burner consuming coal-gas produces as much as three men, while the same sized burner using "water-gas" produces nearly as much as four men. I think it will not be necessary to make any application of these synoptical facts and figures. The literature on the subject is voluminous and scientific, and the ablest scholars on both sides of the Atlantic have not considered a careful treating of this great and beautiful field in sanitary science beneath their dignity.

Pepper and Mustard.

BY LEANDER J. WHITE,

Brooklyn, N. Y.



HUMAN LIFE, though a great and momentous affair, is the sum and result of many little and apparently insignificant arrangements. Who, without experience, could think that pepper and mustard could materially influence our enjoyments: could affect, even in a *moral* point of view, either the head or the heart? Yet so it is—"these little things are great to little men."

Suppose that we are set down to dinner, and that we have been helped to some hot and savory soup; we take up the pepper-

box, but find it either empty or half filled with large particles which will not pass through, or, if it contains a supply of good pepper, the holes are so stuffed up that not a particle can make its escape; we are then led to exclaim, as of many clergymen, "Mighty poor delivery!" Possibly, what is still worse than all, the lid has been so carelessly put on that the moment we begin to use it off it tumbles, and the whole contents of the cruet fall into our plates at once. Or, on the other hand, suppose that we have been presented with a plate of beef; the mustard-pot is empty or it is partially filled with the rancid remains of a former day dirtily clogged around the sides and top of it, or it may be filled with a thin, tasteless fluid, the result of a hasty dash of water put into the half-empty vessel before dinner. It may not even be found on the table at all; and after several times calling for it, and during the time lost in going for it or searching it out, you are obliged silently to eat your beef without the aid of its stimulating flavor. If, on the contrary, you are resolved to wait its appearance, your patience and temper undergo a severe trial, and your keen appetite is lost in the anxiety of hope deferred while the tedious process is gone through of procuring a fresh supply. If, under the same auspices, you should dine day after day at the same table, it is ten to one but the same neglects are repeated.

If you should ask for pickles to your beefsteak, they also will have to be waited for in the same manner; or, if on the table, they will in all probability contain a metallic spoon, the action of the acid on which, producing a poisonous mixture, will effectually deter you from partaking of them.

In short, these little arrangements are an index of the mind of the presiding mistress. It may sometimes be the fault of the servants; but the omissions of servants and waiters, unless they are incorrigible, more frequently depend on the guiding spirit of the house than on their own peculiar faults.

When one sees the arrangements of the table perfect, even including the well-filled, clean and inviting mustard-pot, he may be assured that all the other most important departments of domestic management are in their proper order.

"My dear," says Mrs. Slovenly, "why should you vex and fret yourself so much about such a trifle as the omission of the mustard? How often do you tell *me* not to fret myself about trifles? Besides, I do not think either pepper or mustard agrees with you; and I have been reading lately that too much of such things is unwholesome."

"Yes, *too much* of anything is unwholesome; but what do you say to too little or none at all?"

"I have read, my dear," retorts Mrs. Slovenly, "that man in a state of nature requires none of these things; that half-broiled beef or pork, of which *you* so often complain, is devoured by the savage without salt, or pepper, or anything else, and reckoned a most savory meal; and I do think that all the niceties of cookery are useless, and I am sure they are very, very troublesome!"

"The savage," replies the husband, "takes his food thus because his squaw knows no better; but, depend upon it, did she present him with a well-cooked and well-seasoned mess, he would eat it with a double relish and thrive under it too in a way quite different from what he does under his ill-cooked fare. But even your instance of the savage is an unfortunate one. Your 'man of nature' is just as fond of aromatics and other stimulants as a civilized man. Witness his avidity for salt, for aromatic and bitter roots and herbs, for beer, for tobacco. Nay, if we stoop to the analogy of lower animals—whose appetites you will allow are under the guidance of unerring instinct—we shall find that they, too, are equally incited by appetite to take along with their food stimulants, such as salt and aromatic herbs and roots."

Mrs. Slovenly, however, was unwilling to be convinced. There are none more fertile in evasive excuses than the really indolent and negligent; and she spun out the argument for two hours after dinner, advancing, however, nothing but common-places in support of her theory, till at last she unconsciously gave it a practical death-blow by partaking freely of both tea and coffee in the evening, both of which, according to her view of the question, are equally unnecessary as pepper and mustard.

Hospitals for Consumptives.

A society has recently been established in Saxony, the object of which is to erect hospitals throughout the kingdom for the treatment of phthisical patients. The association is under the protectorate of King Albrecht; the presidents are Professors Curschmann, of Leipsic, and Fiedler, of Dresden.

Sun-lighted Homes.

BY MRS. C. EBNER,

Wadsworth, Ohio.



BEING much impressed by the thought brought about by my recent reading from the ANNALS OF HYGIENE, I could not withstand the strong desire within me to frame a few words of my own. Though this article may not find favor, and may thus be consigned to the waste-basket, I cannot but express some of the lofty ideas I have gained by the entrance of the ANNALS within our home. Life to us ought to be a serious thing; the great possibilities which are within our power to achieve ought to make us count every moment of life more precious than gold. I am often deeply pained when I realize the misery that is brought about by the neglect of the most simple laws of health. Thus brought to the realization of the worth of life, I long to see a change. Having recently built a cottage of our own, I used the experience which I had gained by careful reading of the pages of the ANNALS.

Our intention was to make a home where the health of our dear ones, as well as their comfort, was our first consideration. The site for our home proved to be the requisite thing, being elevated, where the beauty of the surrounding country can be viewed from our windows. We planned our family sitting-room on the east, where the full glory of the morning sun sends its ever-welcome beams across our room, and yet, when the noon-day bids the morning sun depart, it still steals its way through two south windows of the same room, and, as we have been told through the ANNALS OF HYGIENE, we also located our sleeping-rooms in the same happy conditions, where the windows are thrown open to admit the sun again. Having often been surprised that so many people closed their windows, I resolved, being in a new neighborhood, to do a little missionary work. I threw open my windows, made attractive by beautiful blooming plants and pleasant light drapery. There is nothing like beauty to touch the human heart, however hard, and often help it to expand into a new life. I then watched the effect of my effort upon my neighbors.

In a few days the windows of my next neighbor were thrown

open. Tiny slips, with their first effort at blooming, graced the windows and transformed the home with a power of beauty, and the sun flooded the hitherto darkened rooms. Now, as I look around, my heart is gladdened by the color and beauty I see in my neighbors' windows. Thus by a little gentle persuasion we can often do a work valuable to our neighbors which reflects back to our own homes. Oh, woman, how much your hands can do toward the uplifting of humanity! *Read, read*, grow intelligent, a precious gift in need above all things. Throw aside your fine fancy work, which ruins your eyes and steals your time from more worthy things. Bring within your homes nature's own, the flowers with all their varied colors, study the trick of the true artist and arrange them around your rooms, and they will repay you tenfold in the cheerfulness they add to your home. And cheerfulness is a great promoter of health. Do this and you will work a greater reformation than the world has yet known. Woman can do this: it is her work. Do the things that will bring light to the eyes and strength to the forms of your loved ones. Let the sun reign king in your homes.

Bread Making.

BY O. W. PECK, A.M., M.D.,
Oneonta, N. Y.



ACCORDING to the European edition of the *New York Herald*, "a French chemist, M. Villou, has devised a plan for improved bread making, calculated to do away with the microbes alleged to infest ordinary bread, to the detriment of the consumer. M. Villou's plan is to mix flour, salt and water in a closed apparatus, and then to subject the mixture to carbonic-acid gas under a pressure of eighty pounds to the square inch, this pressure to be continued for an hour, accompanied by a steady mixing of the ingredients. Then the dough is to be at once made into loaves and baked. This scheme might be made to work in a large bake-shop, but the ordinary housewife will continue to make her bread in the time-honored way. If the microbe will not down except by the Villou process, the great majority of mortals will continue to suffer from its introduction into 'their midst.' "

The foregoing article appears to the writer to be so wholly irrational as to be silly. As near as can be made out, the intent of it seems to be that there is a definite or individual and, presumably, dangerous microbe which invades bread, and that if the ingredients of which bread is made are mixed in a certain manner, and subjected for an hour to carbonic gas under rather excessive pressure, and then baked, the resultant bread would be safe and harmless.

Now, how is bread "raised"? It is either by yeast or by an alkali and acid, as in baking-powder, and in either case carbonic-acid gas is evolved—not under a pressure of eighty pounds to the square inch, which would, unless inclosed in that closed apparatus of M. Villou's, blow the dough higher than "Gilroy's kite"—but to a pressure sufficient to push aside neighboring particles of starch or dough, and thus make room for itself. It is this process of manufacturing carbonic-acid gas which causes the dough to "rise," that is, occupy more space. So much for the carbonic-acid gas; and now for the baking.

It will be patent to any one who will think for a moment that the heat of an oven sufficient to bake bread will kill all the microbes in the dough, whether it has been raised under a pressure of fifteen pounds or eighty pounds to the square inch.

Finally, no matter by what process bread is raised, it will be equally the resting place and, possibly, the propagating place of microbes of various kinds if brought in contact with them. Understand that the great majority of microbic life is harmless.

The microbes in the dough, if any, and the yeast germs, or microzymes, which were certainly in it if yeast was used, were killed and the carbonic-acid gas dissipated before the bread came out of the oven.

If our bread is baked and kept properly we are as safe in having it mixed in the good old-fashioned way as we would be to have it mixed in a gasometer.

The Contagiousness of Influenza.

The Government report of an investigation into the influenza epidemic of the past four years, in Great Britain, regards the proof of the contagiousness of the disease as overwhelming, and denies that it is transported through the atmosphere.

A Mechanical Device for Artificial Respiration.

BY WILLIAM F. Z. DESANT,

New York City.



AS a reader of and subscriber to your paper, THE ANNALS OF HYGIENE, I take the liberty of sending you the following account of my respirator, as I think it might prove interesting to you or the readers of your paper.

I was very much interested in Professor G. D. Stahley's paper on lung capacity in the ANNALS for last May, and I am sure what I am about to write will interest him.

I have invented, and am about to put upon the market, a mechanical device for producing artificial respiration, that is entirely different from anything in that line ever before introduced, and which will mark an epoch in the history of modern surgery.

In all cases of anæsthesia resulting from the use of ether, morphine, cocaine, and all other anæsthetics, also drowning, asphyxiation, illuminating gas, poisoning, or electric shock, this machine will be invaluable.

In cases of still-birth, where all other methods have failed, this apparatus will be found to give excellent results.

For general use in connection with diseased lungs this machine can be used with medicated air, oxygen, ozone, or any other remedial agents desired.

This is the only respirator that will give relief in cases of emphysema or asthma.

In cases of drowning the water is drawn out, and pure oxygen supplied to the lungs, thus doing away with the barrel rolling and other disagreeable features of the present mode of causing respiration.

In designing this respirator I have avoided all the complicated features that are so often considered necessary to the perfect working of a good instrument.

It consists of two cylinders, and a handle connected with two plungers, four valves, two inlet and two outlet, and the rubber tubes connecting with the mouthpiece or trachea tube.

The machine can be taken apart and immersed in a solu-

tion of carbolic acid, or bichloride of mercury, thus making it thoroughly antiseptic.

The movement of the handle regulates the number of respirations per minute to be given, the length of the stroke regulates the amount of air forced into the lungs; the capacity of the cylinders is twenty-five cubic inches.

The great advantage of this respirator over any other system is, that it will not only force the air into the lungs, but also draw it out without any volition on the part of the patient.

In advanced stages of phthisis the effort of breathing is extremely exhausting and debilitating, and any system of artificial respiration that does not draw the air out as well as force it in is impracticable, or, rather, useless for the purpose intended.

It would also be useful in sunstroke, suspended animation, or any other case requiring artificial respiration.

Dental Notes.

BY DR. G. W. WILLIAMS,

Germantown, Pa.



TOOTHACHE, that torturer of humanity, is but the penalty of violated law.

Cleanliness of the mouth and teeth means sound teeth and better health.

Therefore, your tooth-brush is one of your best friends: use it.

As good a dentrifice as can be used in cleansing the teeth is white Castile soap and rain-water. The alkali of the soap counteracts the effects of the acids that attack and destroy the enamel.

With the greatest personal care, white soft teeth will decay some, but decay may be reduced to a minimum, or entirely prevented, in strong yellow teeth. Every wise person will have the teeth examined once every six months at least, and if any cavity is found will have it filled at once.

Why should mankind be the only class of living beings that

so early and so universally suffer the partial or entire loss of the teeth? Habits of life, kinds of food, and methods of preparing it, intermingling of races, etc., are among the explanations given.

Teach the children to brush their teeth regularly three or four times daily, and to keep them thoroughly cleansed. The habit, once formed, will be of incalculable value in preserving the teeth, and in adding to the personal comfort, beauty and health of the possessor.

It is difficult for a dentist to improve on nature's work. If a sound tooth will decay, then a filled tooth is liable to do the same, no matter how carefully filling may be done. Hence it is as foolish for a dentist to guarantee fillings "five years," or "ten years," as it would be for the doctor who cures you of a disease to-day to guarantee that you will never be attacked with the same disease again. None but quacks "guarantee permanent cures."

No greater mistake can be made than the common one of neglecting decayed teeth until they ache, and then rushing off to the dentist to have them filled. The average dentist will advise extraction. In a majority of cases an aching tooth can be saved by proper treatment, but it takes longer, is more painful, and far more expensive than to have the same filled when the cavity is small.

The amount of sickness and ill health caused by decay and loss of the teeth cannot easily be estimated. People frequently suffer from dyspepsia, neuralgia and other nervous affections, diseases of eyes, ears and throat, and spend large sums of money to cure a trouble that a little personal care and small expense would have prevented, and the skilful dentist could cure.

Harvard Foot-ball Casualties.

During the last four years a good many matches have been played at Cambridge and elsewhere by Harvard teams. The following are the casualties reported by surgical authority: Four fractures of the metacarpal bones, one fracture of the fibula, two dislocations of the elbow, one dislocation of the humerus, one probable fracture of a rib. Such injuries, when received by men in training, are recovered from in half the time necessary for recovery in other subjects.—*Boston Medical and Surgical Journal*.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

All subscriptions to "THE ANNALS OF HYGIENE" are taken "until ordered discontinued," and no agent has authority to make any other arrangement. At end of time to which subscription has been paid or promised, a bill for a year in advance, with return envelope, is sent, and if journal is no longer wanted, the subscriber should mark "Discontinue" on the bill and return to us. A failure to so return bill is considered an order to continue.

The State Sanitary Convention at Harrisburg.

IT is no exaggeration to assert that the recent conference of the State Board of Health with the local boards of the State, which concluded its labors on Saturday afternoon last, January 27, was, as the daily papers without exception stated, one of the most interesting and important assemblages ever convened in that city of conventions, Harrisburg. It may safely be said to mark a new era in sanitary progress in the Commonwealth of Pennsylvania.

That veteran sanitarian, Dr. John H. Rauch, late president and secretary of the State Board of Health of Illinois, who has had a wider experience of such meetings than any man living, did not hesitate to say that he had never attended a convention of sanitarians which impressed him more strongly, whether with regard to the character of the papers presented, the spirit and vigor of the discussions, or the dignity and intellectuality of the members.

As the object was to secure harmony of feeling and uniformity of action between the different health authorities of the State, the committee of arrangements deemed it wise to present a few papers only in order that ample time might be afforded for an interchange of views.

This opportunity was eagerly embraced, the great majority of the delegates being men new to the work and desirous of obtaining all possible information with regard to the manner in which the older boards were in the habit of dealing with the difficulties

with which they found themselves confronted. That our readers may fully understand the significance of the occasion, we will briefly explain that, ever since its creation in 1885, the State Board of Health has been wrestling with the Legislature for the sanitary organization of the State. It found itself when it came into being like a general and staff without an army. To oppose to the hosts of filth, disease and death, it could only bring into the field a few well-drilled companies, such as the Boards of Pittsburgh and Philadelphia, with here and there a few scattered guerillas. Its first effort was to obtain boards of health in the rural districts, one in each township. This proposal was considered by our legislators to be the height of the ridiculous. Failing in this effort, it directed its attention to the development of sanitary interests in cities of the third class and boroughs, and, with the power thus acquired, at length succeeded in securing the passage of a bill, which became a law on the 11th of May last, requiring the Borough Council of every borough in the State to establish a board of health. The success of this measure was doubtless, in part, attributable to the fact that the governor of the State not only strongly urged the subject on the attention of the Legislature in his message at the opening of the session, but manifested his sympathy with the movement in other ways.

It may be added that Governor Pattison was not only the nominal but the actual presiding officer of the recent convention at all its sessions, and evidently took a deep interest in the proceedings. His opening address indicated no little familiarity with sanitary problems. So real was the appreciation on the part of the 200 delegates of the value of the conference that the proposal to resolve itself into a permanent association was enthusiastically received. An organization was effected under the title of "The State Associated Health Authorities of Pennsylvania," with the governor as president *ex officio*. Major Moses Veale, the efficient health officer of Philadelphia and president of the State Quarantine Board, was very appropriately made first vice-president. The essay of the last-named gentleman on the "Powers and Possibilities of Local Boards" was so clear in its statements and so authoritative in its rulings that the association requested the State Board to issue it as a circular for the instruction of sanitary authorities. The proceedings and papers, it may be said, will be published in pamphlet form by the association for the use of the members, as well as appear in the columns of this journal. The

new body will meet every year in the capital of the State. It will make it one of its functions, through its legislative committee, to study carefully the methods by which the efficiency of local boards may be increased, and to co-operate with the State Board in urging such legislative action as shall conduce to this very desirable result. Frequent allusions were made by the essayists to the niggardly appropriation made by the Legislature (\$6000 annually) for the work of the State Board of Health, including the salary of the secretary, and strong resolutions were passed urging greater liberality.

Dr. John H. Rauch, who was elected the first honorary member of the association, drew attention to the inconsistency of appropriating hundreds of thousands of dollars for the cure of disease in hospitals, often of a semi-private nature, and so insignificant a sum for the prevention of disease, by its own legally constituted agency, a department of the State government.

That the effect of this meeting will be far-reaching, both practically and educationally and through its influence on future legislation, cannot be doubted.

Dr. Joseph F. Edwards, the chairman of the committee of arrangements of the State Board, certainly deserves to be heartily congratulated on the success which crowned his efforts.

Consumption Officially Declared a Communicable Disease in Michigan.

At its meeting of September 30, the Michigan State Board of Health unanimously decided that consumption is a dangerous, communicable disease, and must be reported by physicians and householders to the several health boards.

An aged minister, well known for his laconic speech, once asked a blessing at a public dinner, as follows: "Adam sinned by eating, and Noah by drinking. Save us, Lord, from the sin of the one and the folly of the other. Amen."



A Medical Tragedy.

An especially sad example of the dangers to which physicians are exposed is reported from Presburg, in Hungary. A physician, after visiting a patient with diphtheria, went home to change his clothes before continuing his calls. On entering the house his little son rushed up to him, and before the father could prevent it had jumped upon him and kissed his face. Two days later the child was taken ill, and soon died of septic diphtheria. The father's reason gave way under the blow, and he died after a short illness attended by acute delirium, in which he constantly cried out, "I have killed my boy."

Mushroom Poisoning (the *Coprinus Comatus*).

Dr. Harvey B. Bashore writes to the *Medical Record*: "As cases of mushroom poisoning have been recently reported in New York, I beg to offer the description of at least one fungus which is not poisonous, and which I have lately found in this vicinity—*i.e.*, the *coprinus comatus*, or maned agaric. The description, somewhat modified, is that given by Dr. Taylor, of the United States Department of Agriculture: 'The cap is white, and at first cylindrical, two to four inches long, and one to one and a half inches in diameter, and somewhat scaly; at the culmination of growth the lower part of the cap expands, and ultimately becomes bell-shaped, and the gills, which at first are white and then pink, finally turn black and soon melt into an inky fluid; on the stem, which is white and hollow, there is a ring, at first movable, later disappearing. This fungus grows in meadows, and should be gathered when the gills show a pink margin.' The *coprinus comatus* decays very rapidly, and for this reason is rarely seen in the markets; its nutrient value, however, is high, for it is said to contain 25 per cent. of proteids and 2 to 3 per cent. of fats; its characteristics are so marked and distinctive that an error hardly seems possible, and as it grows, in some instances at least, in the greatest abundance, it is a valuable addition to our food supply."

Corset-wearing.

It is said that corset-wearing is gaining ground among the officers of the British and German armies. Fashionable young English swells have been wearing corsets for the last quarter of a century, but it is comparatively recently that the practice has shown a disposition to extend itself to any considerable degree. Women are wearing corsets less, men more ; but, fortunately, the men who are taking to corset-wearing belong to a class with whom society could very well dispense, and so we shall not undertake to inaugurate a reform among male corset-wearers, but let the good work go on until the shallow-pated creatures who ape this feminine folly are exterminated.

Cures for Obesity.

The theory of Hippocrates was that corpulence could be cured by inciting vitality. His prescription was much exercise, fasting, no hot baths, and life in the open air. Galen favored the same treatment, with a diet of vegetable acids, aperients and frequent baths, combined with exercise and frequent rubbing of the body with coarse towels. After this school came the physicians of a few centuries ago, who believed in bleeding. Their theory was that abstraction of blood would free the heart and work off the fat. This theory did not work, as loss of blood weakened the circulation, and a feeble circulation is one cause of obesity. Among remedies for too much fat is that of Borelli, who advised the chewing of tobacco ; Fleming, who prescribed a nightly dose of soap in four ounces of water ; Darwin, who suggested the use of salt ; Brown, who advised the exclusive use of animal food ; and of Regneller, who prescribed friction and the rubbing in of ether and laudanum over the stomach. The modern school of physicians to cure corpulence began with Banting, about thirty years ago. He reduced the diet, restricted it and insisted on the patient's taking a great deal of exercise. There was no doubt that this method achieved results, for if a man would stop eating and take enough exercise he would either die from exhaustion or lose all his surplus weight. Banting's system worked pretty well with people of sluggish temperaments who were not subject to nervous disorders, but for nervous people the treatment was too radical.

About Boiled Milk.

In a recent communication to the Société de Médecine de Lyon on the above subject, Crolas (*Lyon Médical*) concludes :

(1) That the process of boiling the milk relieves this article of food of small quantities of butter, which, mixed with albumin, is found in the skin that forms over the milk on cooling.

(2) That boiling has no action whatever on the caseine or the lactose, these principles remaining the same after as before the boiling.

(3) That boiling increases the quantity of the soluble phosphates, this appearing to show that the boiled milk contains a larger amount of phosphoric acid ready for assimilation.

Crolas, therefore, believes that boiled milk, as an article of food, is equivalent, if not superior, to non-boiled milk.—*Therapeutic Gazette*.

City Boards of Health Have no Inherent Power over City Government.

That boards of health created by city governments or auxiliary thereto have no power over same other than is relinquished to them, is brought out by the decision of the Supreme Court of Georgia in the case of Mayor, etc., of the City of Brunswick *vs.* King, 17 S. E. Rep., 949. Here the court said that the function of the above board was that of an advisory body, and of an agency to carry out such regulations in the matter of the public health, not inconsistent with the laws of the land, as the mayor and council by their ordinances might see fit to direct. The streets of the city being by its charter vested in fee simple in the mayor and council, with power to widen, extend, and straighten the same, and with power to open, lay out, and establish new streets, the necessary incidental power of grading and otherwise improving the streets and keeping them in repair was also in the mayor and council. None of these powers were withdrawn, abridged, or limited by the amended charter of the city, providing for the creation of a board of health and the election of a health officer. Therefore, ordinances passed under the authority of the amended charter, which did not expressly name the mayor and council as subject thereto, were not operative upon them when acting as a municipal body in the exercise of their corporate functions in improving or repairing the streets.—*Cincinnati Lancet and Clinic*.

Geography of Heart Disease.

According to Dr. E. M. Hale, in an interesting paper recently read by him on this subject, heart disease is more prevalent in New Jersey than in any other State in the Union. It kills more people there in proportion to the population than in any other State. Next to New Jersey comes New York in its rate of mortality from heart disease. In the States north of Mason and Dixon's line the mortality from heart disease far exceeds that in the South. Dr. Hale explains this fact by the difference in the weight of the atmosphere. In New Jersey the air is damp and heavy, and in the other States enumerated the same condition prevails. That this is a general law, the doctor said, is proved by the fact that in West Virginia, in the cold and damp atmosphere of the mountains, heart disease is far more prevalent than in old Virginia, where the climate is more even.—*N. Y. Med. Times.*

The Transmission of Cholera by Means of Flies.

It has been proved that tubercle bacilli are found in the excreta and bodies of flies that have been feeding on phthysical sputa, and it has been suggested that it is possible for tuberculosis to be spread by these means. In the *Centralblatt für Bakteriologie und Parasitenkunde*, Band XII, p. 25, is a communication from Dr. Sawtschenko, who has found that cholera bacilli possessing all their virulent properties can be demonstrated for at least four days in the intestinal canal and dejections of flies that have been feeding on the stools of cholera patients or on the intestinal contents of those who have died from the disease. He also produces evidence to show not only that the bacilli pass through the intestinal tract of flies, but also that during the passage actual multiplication takes place. It is likewise an interesting fact to observe that the longer the interval of time which is allowed to elapse between the period of infection and the examination of the dejecta the smaller is the number of saprophytic organisms present and the larger that of the cholera bacilli. Control experiments were made with flies which had been prevented from incurring chance inoculation, and negative results followed. Dr. Sawtschenko, therefore, is of opinion that flies may act not only as carriers of the morbid agent of cholera, but also as hosts of the bacilli.—*The Lancet.*

Church of England Sanitary Association.

Sir Spencer Wells, Bart., speaking at a recent meeting of the Association upon "Cremation," said that the distinguished German engineer, Mr. Lindermann, in sinking wells below the bed of the Rhine to obtain a supply of water for a neighboring town, had found the water so impure that it could not be used, and he was able to trace the source of contamination to another town about twenty miles off. Professor Groves, F.R.S., had stated that where there was drainage or infiltration of water from burial-grounds, the water passing into wells or streams caused them to be contaminated with easily decomposable nitrogenous organic matter; but he was unable to give an opinion as to how far disease might be communicated in this way. The infected germs remaining in dead bodies were believed, by scientific men of the highest distinction, to be preserved for many years by burial in the earth to multiply there, and in due time to renew their deadly influence by polluting earth, air and water.—*Med. Times and Hosp. Gaz.*

Influence of Habitations in the Propagation of Tuberculosis.

Dr. Manuel Gutierrez, in the *Journal of the American Medical Association*, says:

Pulmonary tuberculosis is more frequently observed in the United States than in the Republic of Mexico. The statistical records give a proportion of from 118 to 120 per thousand in America, while in sunny Mexico it does not reach the number of sixty to every thousand. One of the causes which contribute to produce so notable a difference in the propagation of so dangerous a disease, is the difference of the elevation in both countries, because we know that dry air is not a vehicle for the multiplication and generation of the bacillus of Koch, and the relative refraction of the air is in a direct ratio to the elevation. Mexico being 2257 metres above the sea level, it is consequently not difficult to explain its superiority in arresting the conditions favorable to the propagation of a disease which undermines so many constitutions.

The author's attention has been called to the fact that not only in the hotels and public establishments, but also in private dwellings in the United States, there are rooms constantly illumi-

nated with artificial light and in which the light of the sun never penetrates. The individuals who work therein are deprived for many hours of the beneficial action on the economy we know solar light exerts, and we know that these privations and special conditions that accompany them can contribute to the development of tuberculosis by (1) producing the anæmia and its consequent state of malnutrition, preparing the ground that serves for the cultivation of the germs of the disease; (2) increasing considerably the temperature of the place illuminated, constitutes also a propitious cause of multiplication of the pathogenic principles involved in the tubercular process.—*American Lancet*.

Medicine in China.

Some of the medical missionary work carried on in China is portrayed in the latest report of the Edinburgh Missionary Society, from which we reproduce an excerpt from the communication forwarded to the Secretary by Dr. James A. Greig, stationed at Kirin. This gentleman relates how the Governor's palace, the arsenal, and the prefect's yamen afforded their quota of sick :

"An under-secretary of the Governor-General was first to seek our aid. His very painful surgical disease yielded to treatment, and soon it was noised abroad, and we were called in to rescue a mandarin's wife, who had taken a draught of laudanum during a quarrel. She also was restored. A foreman in the arsenal was suddenly attacked with jaundice. Being a Southern Chinaman, he had come in contact with foreigners before, and so, without delay, he sent a cart for me. It was dinner-hour when we arrived, and his room was crowded to suffocation with his fellow-workmen, eager to see and hear the strange man of the west."

These and other cases seem to have yielded to the treatment administered. Other examples of the success which has attended the efforts of the medical missionaries are also recorded, proving that the "Heathen Chinese" is not insensible to endeavors made in his behalf to introduce more judicious and humane methods than those in vogue in the Celestial realm. In this connection it may be of interest to mention that in September last a new wing of the Alice Memorial Hospital was opened at Hong Kong. The cost of the addition was defrayed by a wealthy merchant of that city.

Adulterated Beer.

Dr. Anderson says that one of the worst-adulterated articles in general use as a beverage—and we must admit that it is in very general use—is beer. Instead of being a brew of malt and hops costing one-tenth of a cent per glass and selling for ten cents per glass, thus making 10,000 per cent., quite a reasonable profit, beer is often found adulterated with *cocculus indicus*, capsicum, ginger, quassia, wormwood, calamus root, caraway and coriander seed, copperas, sulphuric acid, cream of tartar, alum, carbonate of potash, ground oyster-shells, *nux vomica*, picrotoxin and strychnine. The articles, presumably, do away with malt and hops, make a stronger beverage when mixed with water and two to eight per cent. of alcohol, thus making the profit 1,000,000 per cent. Dr. Anderson has seen several people “crazy drunk” on beer, and when one considers the picrotoxin, *cocculus indicus* and strychnine it is no wonder they lose their reason.—*Food*.

Chemical History of the Atmosphere.

In the *Chemical News* of August 18, Dr. Phipson gives the chemical history of the atmosphere from its origin to the present day, in accordance with the results of his observations and experiments, particulars of which we have published from time to time. Premising that the matter composing the earth was originally in a gaseous condition at such a temperature that no compounds could exist, he assumes that, when a solid crust later covered an internal molten mass, water was condensed upon the surface and a primitive atmosphere of nitrogen surrounded the globe. Into this atmosphere large quantities of carbonic acid and water were evolved by volcanic action, but there was no free oxygen. Plants then made their appearance, and, in vegetating, evolved oxygen copiously, deriving this element from the carbonic acid supplied by volcanic action. When a certain proportion of oxygen was attained animal life became possible, and duly appeared. At the same time, the proportion of carbonic acid became less, the carbon being stored up as coal, peat, lignite, etc. As these processes proceeded, animal life of a higher order appeared, the development of the nervous system coinciding with the increase of oxygen in the air. As evidence that the composition of the atmosphere is still slowly changing, it is stated that the latest and most careful determinations of carbonic acid in the air have shown a decided decrease (0.05 to 0.03) in the last fifty years.

The Influence of Mode of Life on Stature.

Statistics concerning the influence of the style of living on stature, collected by M. G. Cartier from among the conscripts at Evreux, France, go to confirm the conclusions that other authors have drawn on the subject. Persons who are supposed from their occupations to have been brought up under good hygienic conditions and comfortable circumstances—students, farmers, etc.—are generally of larger than average stature; while persons ill-fed, poorly clothed, or who have grown up in an unfavorable medium—workers in metallurgy, weavers, etc.—are smaller. Consequently, if “the race fixes an ideal mean round which individuals oscillate,” the latter are especially influenced by the conditions of the medium, alimentation, exercise and comfort.

Period of Isolation for Infectious Diseases.

The period of isolation for infectious diseases has again been reported on by a committee of the French Academy of Medicine (July, 1893), and the following conclusions were adopted:

“A 1. The period of isolation, to begin with the first day of the appearance of the disease, should be forty days for scarlatina, small-pox, varioloid and diphtheria. 2. Six days for measles and varicella. 3. As for whooping-cough, three weeks after the disappearance of the ‘whoop.’ 4. Mumps, six days after the disappearance of swelling.”

“B 1. The following measures are necessary before re-entering schools. Antiseptic lotions in the mouth, throat and nose; soap-and-water baths of whole body, including the scalp; thorough disinfection by steam under pressure of all clothing worn from the time of getting sick. 2. The sick chamber to be carefully aired, walls and floors washed with solutions of corrosive sublimate, 1 to 1000; bedding to be treated as clothing; certificate of health officer to be required before re-admission to schools.”

The Water-supply of Hamburg.

Dr. Waldo, the medical officer of health of St. George-the-Martyr, Southwark, has, as one of the results of his annual holiday, presented a report to his sanitary authority, upon a visit to the new filter-beds which have been recently constructed at Hamburg. Dr. Waldo was well fitted to compare the past condition of things with the present, since he resided in Hamburg for six

months prior to the outbreak of cholera there last year. The new filtering arrangements consist, it appears, of four settling reservoirs and eighteen filter-beds. These latter contain a thickness of no less than three metres of carefully washed sand, which is taken from the bed of the Elbe from above the gravel and pebbles. This is certainly a very exceptional depth of sand, and is considerably in excess of that found in most of the filter-beds in this country. It would have been of interest in this connection had Dr. Waldo included in his reports details as to the rate of filtration and the frequency with which the materials of the filter-beds are changed, more especially as we might expect that in Hamburg Professor Koch's interesting discoveries as regards the action of the film formed on the surface of the sand would have received practical application. Anyhow, Dr. Waldo seems to have been so far satisfied with the processes adopted and with the appearance of the filtered water that he fearlessly sampled it. The Hamburg water is, Dr. Waldo informs us, to be shortly subjected from time to time to bacteriological examination, and it would certainly be well if this action on the part of the Hamburg authorities were to be more widely followed in our own country. It is only by this means that it is possible to arrive at a satisfactory notion of what amount of germ filtration filter-beds are effecting. It is, of course, impossible to lay down any general rule as to the cleansing of filters. Each corporation or water company must determine by experiment the standard of its own water, and the methods to maintain that standard. In spite of the satisfactory filtering arrangements described by Dr. Waldo, he is of opinion that Hamburg will always be liable to epidemics of cholera until the city is supplied with a pure and plentiful water-supply from some uncontaminated source, such, for instance, as Holstein. He thinks, too, that there is still some risk of contamination from the use of the old service pipes, and suggests that any bacteriological examinations which are made should be of the water drawn from the house-taps, rather than of that which has but just emerged from the filter-beds. The question of cleansing or disinfecting service mains after an epidemic is a difficult one, and has, we believe, recently caused one of our own sanitary authorities considerable anxiety. Dr. Waldo, though satisfied with the filtering arrangements, appears to have discovered in Hamburg itself cisterns in dark, unventilated water-closets supplying water both for drinking and flushing purposes.—*The Lancet*.

Scavenger Work.

It will be conceded without controversy that one of the first requirements for municipal health is the prompt removal of household refuse.

In towns provided with sewers, means are afforded for carrying off liquid wastes, such as kitchen slops, laundry and bath waste water; but solid refuse, such as apple and potato parings, watermelon rinds, corn-husks, scraps from the table, etc., must be disposed of in some other manner. Doubtless one of the best ways is for such matter to be burned in the kitchen fire, and most of it can be gotten rid of in that manner. But a large number of families use natural gas or gasoline stoves, especially in hot weather, when such refuse accumulates in greatest amount and is most subject to decomposition.

But few of our towns have any system for the collection and removal of garbage. In small villages the common practice is to throw refuse matter into the alleys behind dwellings and business houses. Perhaps once or twice during the summer the garbage is removed from the alleys. In many of the larger towns and in some villages throwing garbage into the alleys is forbidden, and the householder will then usually deposit it in the ash-pile. With careless people it will be allowed to remain until a nuisance is created, and the board of health orders its removal.

To avoid the evils arising from disposal of garbage on the premises, many municipalities provide by ordinance or by-laws of the board of health that property owners shall keep a tight receptacle for garbage, and have it removed once a week or oftener during hot weather. No provision is made for any one to remove it, except, perhaps, to license certain persons to do such work, dependence being placed on the law of supply and demand. As it is seldom the houses are visited until complaint by neighbors is made, this plan offers but little improvement over the disposal by the individual on his premises. Other reasons why this is so are: First, because even the well-inclined are often unable to secure a scavenger, especially if living a great distance from where the garbage is to be dumped. Second, the garbage is removed in a dirty, slovenly manner, leaving a foul, evil-smelling receptacle on the premises. Third, no public dumping ground, as a rule, is provided for garbage, and it is dumped here and there about the outskirts of town, and makes constant trouble and annoyance.

In a few places the removal of garbage has been let to con-

tractors, the garbage to be removed either at the expense of the individual property owner or at the general expense. This plan is generally a failure. The work is nearly always slighted; garbage is not promptly removed and there is constant warfare between the board of health and the contractor.

The best plan is for the town to do the work itself. It should provide, first, that only tight-covered, easily-cleaned receptacles of approved pattern shall be used. These could be sold to property holders at cost. By thus purchasing in quantities there would be quite a reduction to individuals, and easy handling of the garbage would be guaranteed. Properly, there should be two garbage pails for each household; (they may be made in different sizes to suit large or small families), and the owner, if he chooses, could have his name painted on them, so as to insure the return of his own pails.

The city should also have its own garbage wagons, teams and employees, all under the management of the board of health. Works for the disposal or destruction of the garbage, or a dumping ground, should also belong to the city. Here there should be an abundance of hot water provided for cleaning the garbage pails. The city should be so divided into districts that one team could visit every household in a district twice a week or oftener during the hot months, and as often as found necessary during the winter. The wagon would start out loaded with clean, empty pails, which would be substituted for the full pails found upon the premises. When a load of full pails had been collected they would be taken to the dumping place or disposal works, emptied and left for cleaning; a load of clean, empty pails being taken from the dumping grounds for the next trip. With system and management, it would be possible, if desirable, for each property owner to always receive his own individual pails; and the trip of the garbage wagon could be so arranged that it would call on a certain list of houses on a certain day or days of each week, so that householders would always know when to look for it.

This system would guarantee the complete and proper removal of garbage, and the expense would be mainly borne by those best able to afford it. As the proper removal of garbage concerns the health and comfort of all the people, there is as much reason for this work to be done by the city as there is for the cleaning of streets. We hope yet to see this practised in all cities.—*Ohio State Board of Health.*

The Bacteriological Craze.

This is the age of germ rabies, and stark madness has overtaken the hygienists and the public with reference to bacteric infection. Every ounce of water we drink, and every cubic foot of air we breathe, is supposed to be scientifically assayed, and if more bacteria than the approved minimum are found, we are threatened with terrible consequences. The joke of the matter is that the people who are the victims of the craze do not seem to be able to see farther than their noses. They are in agonies of apprehension lest their milkman may have diluted his liquor with bacteria-laden water, and they excessively excite themselves if the cubic contents of their sleeping-rooms is below the scientific minimum; but they pay no regard to the fact that, from morning to night, they are imbibing monstrous doses of bacteria through other media. They never think of the danger of carrying about their person a bank-note which has been bosomed for unlimited time by a reeking fishwoman or costermonger; they box themselves up in a theatre or concert-room packed with inconceivable myriads of germs of all sorts of diseases; they suck grapes which have passed through an endless series of dirty hands, and they smoke cigars which have been lately grasped between the lips and fastened with the spittle of, perhaps, a phthisical tobacco-worker. Lastly, they will cool their glass of champagne, at the most *distingué* dinner-party, with the ice recently frozen off a ditch which is little better than a cloaca, and they trouble not themselves about its bacteric befoulments. We notice we are moved to these observations by the fact that this latter point has been taken up by the Parisian hygeists, and that laws are being made to control the sale of dirty ice. It has been clearly established that much of the ice used in the most aristocratic cafés and clubs is taken off ponds impregnated with every describable abomination, and that, when this ice is melted, myriads of bacteria of every form of virulence are found in a state of activity. We are not to be understood to discourage precaution against the use of foul water or foul air. It is well to be clean, even though we cannot be of spotless purity, but there is no doubt that the bacteric hobby is, at present, being ridden to death, and that any of us who survive for another twenty years will then laugh heartily at the fashionable craze of to-day, just as we now laugh at the iridectomy mania, Koch's tuberculine, or any of the equally *de rigueur* crazes of the past twenty years.—*Medical Press.*

A Few Little Incidents of Foot-ball.

The *Lancet* has long made it a custom to chronicle the not inconsiderable mishaps that occur from time to time on the foot-ball field, and Dr. Amidon, of New York, has taken the pains to make a list from the *Lancet's* reports of those that came to the notice of the editor in the year 1892. How many casualties escaped notice cannot be told. In this year twenty-three deaths occurred in England that were directly traceable to foot-ball. Those indirect ones that occurred subsequently, or that will occur, are left for future historians. Here is Dr. Amidon's little list of the English accidents requiring hospital treatment: Concussion of brain, 3; injury to the head, 1; injury to the nose, 1; fracture of the nose, 1; fracture of the jaw, 1; fracture of the collar-bone, 20; dislocation of arm, 1; compound fracture of arm, 3; fracture of arm, 5; bad fracture of left arm, 2; serious injury to arm, 1; compound fracture of the elbow, 1; fracture of left wrist, 1; fracture of ribs, 3; severe sprain of thigh muscles, 1; fracture of thigh, 3; injury to leg, 1; fracture of leg, 29; bad fracture of leg, 1; compound fracture of leg, 5; fracture of knee-cap, 1; severe injury to knee-cap, 2; fracture of ankle, 3; dislocation of ankle, 1; sprained ankle, muscles and tendons severely wrenched, 1; severe injury to foot, 1; fracture of spine, 1; serious injury to spine, 1; serious injury in groin, 1; severe internal injuries, 2; severe internal injuries, fatal in two days, 1; fatal abdominal injuries, 6; undescribed accidents followed by death, 3; undescribed accident followed by lockjaw and death, 1. Total number of grave injuries, 109. For the year 1893 the returns are not yet in. In the *Lancet* of November 18, there are recorded, as occurring the preceding week, three cases of fractured leg; one of kick in abdomen, with death; one of concussion of spine; one of fractured clavicle; one of injury and death. This year, therefore, there have been at least twenty-eight deaths in England.

Official Declaration of the Contagiousness of Consumption.

Dr. Herman M. Biggs, chief inspector of the division of pathology and bacteriology of the New York Health Department, has presented a report to the Board of Health recommending the adoption of measures for the prevention of consumption, which he officially declares to be a contagious disease. He says that last year six thousand deaths due to tuberculosis were reported

to the Health Department, and that the time has come when the health authorities should assume surveillance of consumption. Dr. Biggs makes these suggestions :

“ That there be systematically disseminated among the people, by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of actual danger. That all public institutions be required to transmit to the Board of Health the names and addresses of all persons suffering from pulmonary tuberculosis within seven days of the time when such persons first come under observation. That special inspectors be assigned to duty for the investigation of this disease, and whenever the department has become aware of the existence of families or premises where tuberculosis exists or has recently existed, it shall be the duty of these inspectors to visit such premises and deliver proper circulars and give suitable information to the persons residing there, and take such specific measures of disinfection as are required in each case. That the Board urge upon hospital authorities the importance of separation, so far as possible, of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that proper wards be set apart for the exclusive treatment of this disease. That the department of Charities and Correction be requested to set apart one of the hospitals under its charge, to be known as ‘ The Consumptive Hospital,’ to be used for the exclusive treatment of this disease, and that, so far as practicable, all inmates of the institutions under its care suffering from tuberculosis be transferred to this hospital.”

The report was referred to the Sanitary Committee of the Board for consideration.

The Temperaments.

It is interesting to find that so thoroughly scientific a man as Professor William Preyer has adopted the four-fold classification of temperaments made nearly two thousand years ago, namely, the choleric, sanguine, melancholy and lymphatic. The existence of one or the other of these temperaments may be discerned, he says in his work on “ The Infant Mind,” very early in the great majority of children—in the second quarter of the first year, beyond a doubt.

Nearly every one who has written about temperaments has gotten up a classification of his own : Galen had nine, Haycock gave six, Graham Brown, seven, and others have got down as low as two. Modern writers use the word nervous for choleric

and bilious for melancholic temperament. With these verbal modifications the old classification seems to answer all practical purposes, and individuals can build up combinations as needed.

Hutchinson defines temperament as the sum of the physical peculiarities of a man exclusive of his tendency to disease. This is not very satisfactory, though perhaps temperament is a thing a little too vague to be satisfactorily defined. In modern terms it may be said to be the peculiar way in which the individual reacts to the stimuli of his environment. There is no doubt that one class of persons react quickly and easily, expending energy profusely and often needlessly in their life work; others react hopefully and work buoyantly, yet with less waste. We can thus distinguish the nervous, the sanguine, the melancholic, etc. A capacity to recognize and appreciate the importance of temperament used to be considered part of a sound medical training. It has been too much neglected in our pursuit of minutiae with microscopes and test-tubes. Our teachers of practical medicine might well revive its study.—*Medical Record*.

The Turkish Bath.

David Urquhart, an enthusiastic Englishman, was the foremost promoter of the hot-air bath, named by him the Turkish bath, which is daily challenging the attention of the medical man. Its increasing popularity among the laity calls for thoughtful action by the profession. If it is to be permanently identified with the life of our people, there will necessarily be much in it of great practical interest to the scientific physician. Hot air as a therapeutic measure is older than the time of Hippocrates, who identified himself with its use. During the prosperous times of the Roman Empire it became one of the most popular institutions of the day. The many ruins now standing throughout what were but provinces of Rome attest its extensive employment at that time.

No new theory is propounded. On the contrary, this is what has been known, though imperfectly practised, for centuries. Air and water and temperature are the most salutary and unfailing agents for the correction or alleviation of the numerous derangements to which life is exposed.

In the hands of its modern advocates the Turkish bath has met with varying fortunes, according to the skill or merit of its

promoters, and it is most desirable that the scientific mind should rescue it from whatever pertains to charlatanry. Its use as a therapeutic measure naturally comes within the province of the medical profession, and if there follows even a fraction of the benefit claimed by its enthusiastic advocates, the community will have occasion to be thankful.

Its action in rheumatism and some of the neuroses, as well as blood-poisoning, has been marked by many successes. But the larger field for this bath will probably come in the line of preventive medicine. It does prove of service as a means of rest to those who are suffering from the every-day pressure of overwork. There is little doubt that our people will gradually become educated to the legitimate use of this bath, and that it will ultimately be largely adopted by them as a habit. It will supply a much-needed want by increasing our sanitary resources, helping to lift all to a higher plane of health and the physician to a higher standard of work. A most desirable and convincing method of promptly testing this would be by placing a well-equipped Turkish bath, in charge of one conversant with it, in some of our asylums and hospitals. It is a lamentable fact that bathing facilities in these institutions are, as a rule, of the rudest and most undesirable kind.

It is well to guard against any immature conclusions. At the same time, those who have experienced the feeling of vigor and elasticity arising from the use of this bath will be inclined to pardon the enthusiasm of its votaries. Opportunity, tests and time will surely reveal all its lasting virtues, and it is always wise to range ourselves on the side of cleanliness and purity. It was Dr. Andrew Combe who said, "We ought to extend the hand of welcome to every man who is able to correct an established error or add a new truth to the existing store; and much more so, if the offered contribution should be of that new and important principle, capable, if true, of modifying and improving the whole field of medical practice."

There is a moral obligation resting on all who have intelligence and opportunity, to become acquainted with the laws of health and live in obedience to them, and also to gain a knowledge of the simple and natural agencies by which deviations from the normal standard can be corrected. When once this knowledge becomes general, there will be a vastly smaller field for any form of quackery, and the too general use of patent medicines will be dispensed with. None are better qualified than medical men to lead in such a reform.—*Jour. Am. Med. Asso.*

Dr. Egbert's Reply to Mr. Jackson.

4814 SPRINGFIELD AVENUE, PHILADELPHIA,

October 31, 1893.

My attention has just been called to a communication in the November number of THE ANNALS OF HYGIENE that perhaps necessitates some notice on my part, inasmuch as the writer refers to the abstract of one of my lectures published in the October number, and so evidently misunderstands the full meaning of my statements and position. I refer to the communication on pages 673-4 from Mr. Jackson, concerning which it is but right that I should state that Mr. Jackson first did me the courtesy of asking permission to criticise my article, which permission I freely granted. I trust he gives me the same right of discussing his statements.

In the first place, I take it to be the function of one in the chair and other positions which I at present happen to hold, to pass judgment upon the so-called "sanitary inventions, devices or appliances" that may be brought to his attention, in order that those whom he teaches and the public in general may be benefited thereby; provided that judgment is given in a thoroughly unprejudiced manner, without undue influence, and so that it does not partake of the nature of unprofessional advertising. It is scarcely necessary to state here that I have endeavored to observe all these points in all my articles, and I am sure that Mr. Jackson will not need my assurance that my remarks on the apparatus in question were entirely unbiased. And it is for these very reasons that I do not mention the apparatus more explicitly, though I shall always be glad to give any one what information I can about it or any other article I may publicly discuss.

Now as to what I said and Mr. Jackson's remarks. The careful and fair reader of my October article will notice that I took care to say that this gas-heater, of which we are speaking, was "*intended* to not only perfectly consume the gas it uses, but to destroy by fire *all* the impurities in the air in the room in which it is located" (though I did not say that it did do this absolutely), that "*experience seems* to show that the claim is well founded," and that "*it seems* certain that after several hours' use there is no impurity," etc. The reason I used these expressions was because thus far I have had no opportunity to make chemical tests of the air of rooms in which these heaters have been used, and have only had the evidence personally of my own senses; others, however, who have made the chemical tests, assure me that they were remarkable in the small amount of actual impurity that they showed. I, of course, do not pretend to vouch for their accuracy.

Let us look at the question first on *a priori* grounds. Mr. Jackson's figures are probably correct as to the amount of oxygen and air a man needs in an hour, but he forgets that a *Bunsen* burner consuming twelve or fifteen cubic feet of gas an hour will need several hundred feet of air, though I do not say here that all the oxygen in that air will be used. But this question of the oxygen supply is really misleading, and has comparatively little to do with the case. I seriously doubt whether Mr. Jackson, with all his experience in ventilating houses, ever found a room, or series of apartments, where any reasonable number of persons could not get a full supply of

oxygen or where any bad results followed, *provided* the air was free from the impurities due to respiration, combustion, sewer-gas, etc. Nor is it the main or the commonly accepted purpose of ventilation to simply supply sufficient oxygen. Parkes states, as I have quoted, that "it will be desirable to restrict the term ventilation to the *removal* or *dilution*, by a supply of pure air, of the pulmonary and cutaneous exhalations of men, and of the products of combustion of lights in ordinary dwellings, etc." Not a word about a supply of oxygen. The oxygen a man absorbs comprises only 5.4 per cent. of the quantity of air that he takes in at each inspiration. Taking Mr. Jackson's own statement, that a man absorbs 0.9 cubic foot of oxygen per hour, he therefore needs only 16.667 cubic feet of air per hour when at rest, and seven times this amount when doing work equivalent to running at the rate of six miles per hour, say 120 cubic feet at the utmost. Will Mr. Jackson venture to say that any one can need or utilize more air than this, *provided* all respiratory and other impurities be destroyed or removed from that air as fast as produced? Now, I have not said that this gas-heater does destroy all the impurities in the air, but only that "experience *seems* to show that the claim is well founded." This experience, as far as I myself am concerned, I shall give later. I notice, however, that one of my sentences is capable of a double meaning; the idea would have been more accurately expressed had I said the heater was intended to destroy by fire the impurities of *all kinds* in the air of a room.

The question here arises: Why should we not use fire and heat to purify the air we breathe, provided we can devise any safe means of doing so? As sanitarians, we look upon these agents, in all our functions and habits of life, as being the very best to destroy organic impurities, whether living or dead, and we make use of them wherever we can. So far as I know, the inventor of this heater is unique in attempting the purification by fire of the air of ordinary dwellings, and I believe that his idea threatens to revolutionize our present notions concerning the heating and ventilation of houses. Whether his appliance is the best possible for the utilization of this idea, I do not know and I am not prepared to state.

Mr. Jackson also speaks of the heater being "an additional source of contamination." Will he kindly tell me what the impurities are which it produces and gives off to the air of the room? I freely admit that some carbonic acid gas is produced, but I cannot see how a properly regulated Bunsen burner (and this heater is practically only a series of these), can give off any other impurity or compound except the vapor of water and possibly a very small quantity of highly oxidized sulphur compounds; the latter being much less dangerous, either as regards amount or composition, than those produced and given to the air by any of the usual processes of combustion of coal. And I have not only my own opinion on this matter but that of some of the best chemists in this city to sustain me in my assertions. Of what use is our accurate chemical knowledge and reason if we do not apply it fairly when occasion arises, even though it goes against preconceived notions or our own interests?

Moreover, whatsoever organic impurities are carried through the Bunsen flame will be completely oxidized by the intense heat and converted into carbonic acid gas, aqueous vapor and an almost infinitesimal amount, if any,

of ash. Nor will any more oxygen or the air containing it be used than is necessary to completely oxidize the carbon and hydrogen of the fuel and of the substances passing through the flame; all the rest will go through unchanged and absolutely pure. As most heating appliances have the fault of giving too dry an air, the watery vapor can scarcely be looked upon as a contaminant. The ash is too infinitesimal to consider. Carbonic acid gas is the only compound left that may cause us any uneasiness.

But all modern text-books, Parkes, Wilson, Murphy and Stevenson, Rohé, etc., unite in declaring that there is no evidence that this gas, in itself and free from other impurities, is capable of producing any harmful effects in a proportion of 2 or even a greater per cent., even though the air be breathed for a long-continued period. In fact, I am not aware of any experiments that have determined the actual percentage of gas that is harmful, but one writer states that it may be *assumed* that 10 to 20 per cent. is a dangerous amount; *i.e.*, a quantity from 500 to 1000 times that which we take to be the index of permissible respiratory impurity. Again, if it were really harmful *per se*, what should we say of the very general use of carbonated waters and beverages upon the public health? Are they not rather looked upon as being healthful as well as harmless? And will my medical friends forget the very large quantities of the gas that were administered to patients in the Bergeon treatment of consumption a few years ago?

We can count upon about two cubic feet of carbonic acid gas being produced for every cubic foot of coal gas burned; consequently, the amount produced by one of these gas heaters in one hour would be but a very small percentage of the total cubic contents of an ordinary sized room, and it would take a long time for the carbonic acid gas to reach anything like a dangerous proportion, even if the room were absolutely air-tight. But every one who has ever given the subject of ventilation serious thought, Mr. Jackson among the rest, knows that there never are any air-tight rooms, no matter how carefully they may be built, and that there is always a very considerable leakage of air in and out of all rooms, not only through the crevices around windows, doors, casings, etc., but through the very walls themselves, the cooler air tending to come in below, the warmer to escape above; and though this leakage is not usually sufficient to dilute the organic impurities to the conventional limit of safety, it is always greater than we imagine. Were it not so, the occupants of houses without special ventilating apparatus, and that means the great majority of dwellings, would suffer much more than they do from maladies due to impure air. Now, by means of this outgoing current at the top of the room, considerable of the carbonic acid gas produced by the gas heater, or in any other way, is carried off, together with much of the organic and other impurities; and it is undoubtedly for this reason that what tests have been made show such a low percentage of the gas in rooms heated with these heaters. Moreover, there is good evidence to show that probably not more than 25 per cent. of this leakage can be prevented in most cases, no matter how much we may desire or attempt to lessen it.

Coming to the practical working of the heater, I can only give my own experience with it. I used one in my own house (in a bedroom) the greater part of last winter, and found it quite satisfactory. Not only did it warm

that room as it had never been warmed before, in extremely cold weather, but it rendered the temperature of the whole floor more equable by counteracting the tendency to back drafts down the hot air flues on the cold side of the house. The air was always pleasant and fresh, nor was there any appreciable odor of gas or gassy products, such as are perceptible when other gas stoves are burning, nor any signs of that "closeness" that one usually perceives in a bedroom in the morning, especially when windows and doors have been closed all night. If the air ever seemed dry, it was because the evaporating pan beneath had been allowed to become empty. Nor were there any personal symptoms that could be attributed to the use of the heater, and the family was particularly free from colds throughout the winter. I have also a friend who heated his whole house with these heaters, and it was heated as well and as agreeably as any to which I was called. There was much less sickness there than usual, and almost none that could be ascribed to the weather.

I do not know whether the apparatus "consumes every microbe," nor do I suppose that it immediately and instantaneously destroys the respiratory impurities as fast as they come from the lungs; but I have good reason for believing that practically all the air in the room, except that portion that escapes by leakage, goes through the flame, not once, but several times in the course of an hour. The presence of lithium salts scattered in the air sixteen feet from the burner, was indicated by the characteristic flame within one minute and a half; scattered in an adjoining room, thirty feet from the burner, the crimson flame appeared in three and one-half minutes. So with sodium and potassium salts, doors and windows being closed during the tests to exclude other currents than those caused by the heater itself. This certainly shows a good circulation of air in the room. The odor of tobacco is quickly dissipated after smoking, and I have noticed that there was no trace of odor in a room within a few minutes after an onion poultice had been prepared therein. Can we say as much for any of the ordinary systems of ventilation with which we are acquainted?

Lastly, the volatile organic matter from the lungs, the real substance that produces the harmful effects in those breathing respired air, must be either destroyed, removed or diluted below the limit of respiratory impurity, for we know that when above that limit it is very perceptible to the sense of smell, especially of one coming in from the out-door air, and that it quickly renders the air of a room foul and "close." So, with a plentiful supply of good air from without, which comes into all houses, even those of the best construction, with harmful impurities destroyed or kept below the danger limit, with practically no contamination from the apparatus, and with a full utilization of the fuel value, what more can be asked of any heating appliance?

As to the steam coil or chest above the flame, I do not know that the inventor has ever claimed that it adds to the healthfulness of the apparatus, but we all know that a small surface heated very hot will not warm a large quantity of air so quickly, so equably, so pleasantly, or so satisfactorily as a larger surface heated with the same number of heat units, and I take it that that was why the steam coil was added. No more heat units are produced, but they are transferred to the air of the room more quickly and evenly, and that is what we seek in any kind of heating apparatus.

Whether the term "deceit" can be applied to the construction of the heater or the advertisement is none of my concern, as I have nothing to do with either; but Mr. Jackson has no right to use the word in a criticism of my statements. Nor do I believe that he can prove his assertion that the heater is "no more healthful than a charcoal brazier, grate or stove that has no chimney connection, etc." These latter would thus give off one of the deadliest of gases, *carbon monoxide*, something which a properly regulated Bunsen burner never produces. And while I regret that these remarks may be wrongly construed by some as an advertisement of the article in question, I simply submit them as a defence of my published statements and opinions, to be fairly considered by all who are open to scientific argument, and in this case I think I may venture to say without "sarcasm," in the use of which I am not an adept, that unless my premises, logic, facts and figures are all astray, I am not so rash or wrong as Mr. Jackson would have the public believe.

Very sincerely,

SENECA EGBERT, M.D.



This department is designed for the description of improved Sanitary Appliances and Medicinal Preparations introduced by patrons of The Annals. The matter is not paid for, nor can it be classed as advertising. But as the information is necessarily obtained from those who offer the appliances for sale, it is proper to say that the manufacturers, rather than ourselves, are responsible for the statements made.

Some Excellent Rules to Follow in the Care of the Teeth.

One of the most skilful dentists in New York gives these rules for the care of the teeth:

Use a soft brush and water the temperature of the mouth. Brush the teeth up and down in the morning, before going to bed, and after eating, whether it is three or six times a day. Use a good tooth powder twice a week, not oftener, except in case of sickness, when the acids from a disordered stomach are apt to have an unwholesome effect upon the dentine. Avoid all tooth-pastes and dentifrices that foam in the mouth; the lather is a sure sign of soap, and soap injures the gums, without in any way cleansing the teeth.

The very best powder is of precipitated chalk : it is absolutely harmless and will clean the enamel without affecting the gums. Orris root or a little winter-green added gives a pleasant flavor, but in no way improves the chalk. At least a quart of tepid water should be used in rinsing the mouth. A teaspoonful of Listerine in half a glass of water used as a wash and gargle after meals is excellent ; it is good for sore or loose gums ; it sweetens the mouth, and is a valuable antiseptic, destroying promptly all odors emanating from diseased gums and teeth. Coarse, hard brushes and soapy dentifrices cause the gums to recede, leaving the dentine exposed. Use a quill pick if necessary after eating, but a piece of waxed floss is better. These rules are worth heeding.

Be assured of the genuine Listerine by purchasing an original bottle.

Consumption Contagious.

Dr. Herman M. Biggs, chief inspector of the division of pathology and bacteriology of the New York City Health Department, officially declares consumption to be a contagious disease.

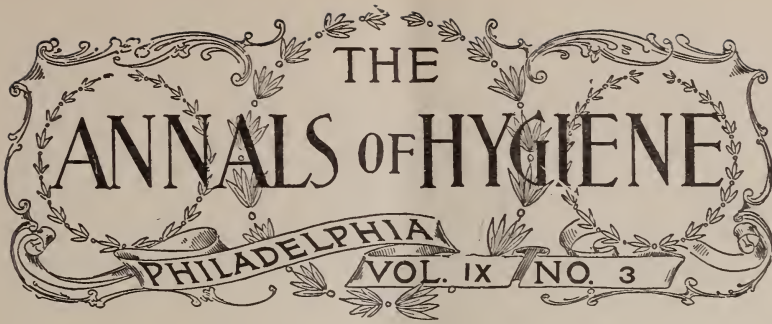
Six thousand deaths from this dread disease were reported in that city alone during 1892.

State and municipal boards of health in all parts of the country agree that consumption is at least an infectious and communicable disease, and that every tubercular person is a source of actual danger.

The disease is transmitted from the sick to the well usually by means of the dried and pulverized sputum floating as dust in the air, and it is estimated that at least one-seventh of the persons who die from phthisis acquire it from breathing the air so tainted.

This being the case it can in a great measure be restricted by the use of proper and unobjectionable disinfectants. Platt's Chlorides, one part to ten of water, frequently sprinkled about the room, and the same disinfectant, one part to four of water, in the cuspidor or vessel receiving the poisonous and offensive expectorations, is especially applicable, as it is a liquid without odor or color, and its frequent use is not attended with any annoying features.

Certainly it is time that more strict surveillance of this destructive disease were assumed by physician and attendant, and if physicians will do with consumption as they have done with other dangerous diseases much suffering and loss of life can be prevented.



COMMUNICATIONS.

The State Sanitary Convention at Harrisburg.

STEPS LEADING UP TO THE CONVENTION.



VER since the creation of the State Board of Health of Pennsylvania this board has been striving to secure an efficient sanitary administration of the State. All efforts were unsuccessful, however, until the last session of the Legislature, when an Act was passed *compelling* the creation of a local Board of Health in each and every borough in the State. This Act reads as follows :

AN ACT

To enable Borough Councils to establish boards of health.¹

SECTION 1.—*Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the authority of the same,*—That it shall be the duty of the president of the Town Council, or burgess, where he is the presiding officer, of every borough in this Commonwealth, within six months after the passage of this Act, to nominate and, by and with the consent of the Council, to appoint a Board of Health of such borough, to consist of five persons, not members of the Council, one of whom shall be a

¹ The provisions of this Act are equally applicable to cities of the third class, due allowance being made for the difference in municipal organization and names of officers.

reputable physician of not less than two years' standing in the practice of his profession.

At the first appointment the president of the Town Council, or burgess, where he is the presiding officer, shall designate one of the members to serve for one year, one to serve for two years, one to serve for three years, one to serve for four years, and one to serve for five years; and thereafter one member of said board shall be appointed annually to serve for five years.

The board shall be appointed by districts to be fixed by the Town Council, representing as equally as may be all portions of the borough. The members shall serve without compensation.

SECTION 2.—The duties, responsibilities, powers, and prerogatives of said board shall be identical with those assigned to boards of health of cities of the third class by Sections three, four, five, six, and seven of Article XI of the Act of May twenty-third, one thousand eight hundred and eighty-nine, entitled "An Act providing for the incorporation and government of cities of the third class," which reads as follows, due allowance being made for the difference in the municipal government of cities and boroughs.

SECTION 3.—The members of the board shall severally take and subscribe the oath prescribed for borough officers, and shall annually organize by the choice of one of their number as president. They shall elect a secretary, who shall keep the minutes of their proceedings, and perform such other duties as may be directed by the board, and a health officer, who shall execute the orders of the board; and, for that purpose, the said health officer shall have and exercise the powers and authority of a policeman of the borough. The secretary and health officer shall receive such salary as may be fixed by the board, and shall hold their offices during the pleasure of the board. They shall severally give bond to the borough, in such sums as may be fixed by ordinance, for the faithful discharge of their duties, and shall also take and subscribe the oath required by members of the board. All fees which shall be collected or received by the board or by any officer thereof, in his official capacity, shall be paid over into the borough treasury monthly, together with all penalties which shall be recovered for the violation of any regulation of the board.

The president and secretary shall have full power to administer oaths or affirmations in any proceedings or investigation touching the regulations of the board, but shall not be entitled to receive any fee therefor.

SECTION 4.—The said board of health shall have power, and it shall be their duty, to make and enforce all needful rules and regulations to prevent the introduction and spread of infectious or contagious diseases, by the regulation of intercourse with infected places, by the arrest, separation, and treatment of infected persons and persons who shall have been exposed to any infectious or contagious diseases, and by abating and removing all nuisances which they shall deem prejudicial to the public health, to enforce vaccination, to mark infected houses or places, to prescribe rules for the construction and maintenance of house drains, waste pipes, soil-pipes, and cesspools, and to make all such other regulations as they shall deem necessary for the preservation of the public health. They shall also have power with the consent of the council, in case of the prevalence of any contagious or infectious disease within the borough, to establish one or more hospitals, and to make provision and regulations for the management of the same. The board may in such cases appoint as many ward or district physicians and other sanitary agents as they may deem necessary, whose salaries shall be fixed by the board before their appointment. It shall be the duty of all physicians practising within the borough to report to the secretary of said board of health the names and residences of all persons coming under their professional care afflicted with such contagious or infectious diseases in the manner directed by the said board.

SECTION 5.—The said board of health shall have power, as a body, or by committee, as well as the health officer, together with his subordinates, assistants, and workmen, under and by order of the said board, to enter, at any time, upon any premises in the borough upon which there is suspected to be any infectious or contagious disease or nuisance detrimental to the public health for the purpose of examining and abating the same, and all written orders for the removal of nuisances issued to the said health officer by order of said board, attested by the secretary, shall be executed by him and his subordinates and workmen, and the cost and expenses thereof shall be recoverable from the owner or owners of the premises from which the nuisance shall be removed, or from any person or persons causing or maintaining the same, in the same manner as debts of like amount are now by law collected.

SECTION 6.—The said Board of Health shall have power to create and maintain a complete and accurate system of the registration of all marriages, births, and deaths which may occur

within the borough, and to compel obedience to the same upon the part of all physicians and other medical practitioners, clergymen, magistrates, undertakers, sextons, and all other persons from whom information for such purposes may properly be required. The board shall make and cause to be published all necessary rules and regulations for carrying into effect the powers and functions with which they are hereby invested, which rules and regulations, when approved by the borough council and chief burgess, and when advertised in the same manner as other ordinances, shall have the force of ordinances of the borough; and all penalties for the violation thereof, as well as expenses necessarily incurred in carrying the same into effect, shall be recoverable for the use of the borough in the same manner as penalties for the violation of borough ordinances, subject to the like limitation as to the amount thereof.

SECTION 7.—It shall be the duty of the board of health to submit annually to the council, before the commencement of the fiscal year, an estimate of the probable receipts and expenditures of the board during the ensuing year, and the council shall then proceed to make such appropriation thereto as they shall deem necessary, and the said board shall, in the month of January of each year, submit a report in writing to the council of its operations for the preceding year, with the necessary statistics thereof, together with such information or suggestions relative to the sanitary condition and requirements of the borough as it may deem proper; and the council shall publish the same in its official journal. It shall also be the duty of the board to communicate to the State Board of Health, at least annually, notice of its organization and membership, and copies of all its reports and publications, together with such sanitary information as may, from time to time, be required by said State Board.

SECTION 8.—All Acts or part of Acts inconsistent with, or contrary to, the provisions of this Act are hereby repealed.

Realizing that concerted action between these newly-created local boards, the local boards in existence for years, and the State Board was necessary for the best results, the latter body, at its meeting in Harrisburg, in November, 1893, decided to hold a conference between these various bodies in the City of Harrisburg some time during the month of January, 1894, and Dr. Joseph F. Edwards was chosen chairman of the Committee of Arrange-

ments for this convention, with power to name his own committee. Dr. J. H. McClelland, Mr. Howard Murphy, C. E., and Dr. Benjamin Lee having been named as members of this committee, the following call for the convention was issued to every borough in the State of Pennsylvania :

CALL FOR THE CONVENTION.

December 12, 1893.

To the Secretary of the Board of Health :

DEAR SIR :

The State Board of Health will hold a sanitary convention in the City of Harrisburg on Friday and Saturday, January 26 and 27.

The fundamental idea of this convention is, that it shall be a conference between the local Boards of Health of the State. A full representation from these various local boards will secure a discussion of the duties, powers, responsibilities, and possibilities of local Health Boards, which will do much to secure the most efficient sanitary administration of the State. It is, therefore, earnestly hoped and trusted that your board will send one or more delegates to this conference, and that you will kindly notify the chairman of the Committee of Arrangements, at your very earliest convenience, of the names of your delegates. His Excellency, Governor Pattison, has kindly accepted the presidency of the convention, and will be present at the sessions. A programme of details will be mailed to you later on.

Very respectfully yours,

JOSEPH F. EDWARDS, M.D., *Chairman,*

J. H. McCLELLAND, M.D.,

HOWARD MURPHY, C. E.,

BENJAMIN LEE, M.D.,

Sec'y Committee.

The responses to this call were unexpectedly and amazingly great, as evidenced by the list of local boards represented, and delegates accredited to the convention, as found at the end of this report.

PROGRAMME.

Sanitary convention under the auspices of the State Board of Health of Pennsylvania, being a conference between the local

Boards of Health of Pennsylvania and the State Board, to be held in the Supreme Court chamber, Harrisburg, Friday and Saturday, January 26 and 27, 1894.

OFFICERS OF THE CONVENTION.

President: His Excellency Robert E. Pattison, *Governor of Pennsylvania*. *Vice-Presidents*: Hon. Thomas P. Merritt, *Ex-Mayor of Reading*; Hon. S. T. Davis, M.D., *President of the State Board of Health of Pennsylvania*; Major M. Veale, *Health Officer of Philadelphia*; Crosby Gray, Esq., *Department of Public Safety, Pittsburg*. *Secretary*: William B. Atkinson, M.D.

As the main purpose for which this conference has been called is to secure harmony of feeling and uniformity of action between the various local health authorities of the State, the Committee of Arrangements has deemed it wise to present a few papers only, that ample time may be afforded for an interchange of views; and it is earnestly hoped that questions will be fully asked, and opinions freely expressed by the various delegates.

PROGRAMME.

Friday, January 26, 1894. Morning Session—10 A.M.

(1) Prayer, by the Right Rev. Thomas McGovern, D.D., Bishop of Harrisburg.

(2) Opening address, by His Excellency, Governor Pattison.

(3) "The Authority and Mission of the Local Board of Health," by M. G. Lippert, Vice-President of the Board of Health of Phoenixville.

Discussion (limited to five minutes for each participant).

(4) "The Duties of Local Boards of Health in the Management of Contagious and Infectious Diseases," by Wm. H. Ford, M.D., President of the Board of Health of Philadelphia.

Discussion.

(5) "Sanitary Engineering, or, The Prevention of Preventable Diseases," by Howard Murphy, C.E., Engineer Member of the State Board of Health of Pennsylvania.

Discussion.

Afternoon Session—2 P.M.

(6) "Sanitary Sins of *Omission* and *Commission* in our Common Schools," by S. T. Davis, M.D., President of the State Board of Health of Pennsylvania.

Discussion.

(7) "Powers and Possibilities of Local Boards," by Major M. Veale, Health Officer of Philadelphia.

Discussion.

(8) "How the State Board and Local Boards of Health may be Mutually Helpful," by Benjamin Lee, A.M., M.D., Secretary of the State Board of Health of Pennsylvania.

Discussion.

(9) "To what Extent should Compensation be made for Losses Sustained to Protect Communities in Cases of Contagious Diseases," by J. H. McClelland, M.D., Ex-President of the State Board of Health of Pennsylvania.

Discussion.

Evening Session—8 P.M.

(10) "The Local Board as a Sanitary Instructor" (illustrated by the stereopticon), by Joseph F. Edwards, A.M., M.D., Member of the State Board of Health of Pennsylvania.

Reception by His Excellency, Governor Pattison, at the Executive Mansion, to the visiting delegates, from 9 to 10 P.M.

Saturday, January 27, 1894. Morning Session—9.30 A.M.

(11) Prayer, by the Rev. Dr. Dimmick, Pastor of Grace Church, Harrisburg.

(12) "A Few Needed Reforms in the Health Service," by Crosby Gray, Esq., Department of Public Safety, Pittsburg.

Discussion.

(13) "A Paper," by Pemberton Dudley, M.D., Member of the State Board of Health of Pennsylvania.

Discussion.

Afternoon Session—2 P.M.

(14) "The Ounce of Prevention," by Abraham M. Beitler, Director of the Department of Public Safety of Philadelphia.

Discussion.

The headquarters of the Committee of Arrangements will be at the Commonwealth Hotel, where all delegates are requested to register upon their arrival in Harrisburg.

Special rates of \$2.50 per day have been secured for delegates at the Lochiel, Commonwealth, and Bolton Hotels.

JOSEPH F. EDWARDS, M.D.,
Chairman Committee of Arrangements.

J. H. McCLELLAND, M.D.,

HOWARD MURPHY, C.E.,

BENJAMIN LEE, M.D.,

Committee.

PROCEEDINGS OF THE CONVENTION.

The convention was called to order promptly at 10 A.M, on Friday, January 26, by the President, His Excellency, Robert E. Pattison, Governor of Pennsylvania, who, it was noted, with the greatest and most satisfactory significance, was present during every moment of the meeting, declining to be called away, notwithstanding the fact that repeated urgent calls upon his time were made. The programme, as printed, was carried out to the letter.

BISHOP MCGOVERN'S PRAYER.

The convention was opened with a prayer by the Right. Rev. Thomas McGovern, D.D., Bishop of Harrisburg, who said,—

"We pray Thee, oh almighty and eternal God, Whom all men should adore, that Thou direct by Thy wisdom the deliberations of this convention, that all things done therein may redound to Thine honor and glory, and promote the blessings of health and happiness among the afflicted. We, Thy children, O Lord, are straitened and compassed on all sides by many and painful infirmities. Thy providence hath care of the birds of the air, and surely we, Thy children, created in Thine image and likeness, are of more value than they. Thou canst say but the word, and sickness will depart; as Thou hast done in divers times

by thy prophets, and, lastly, by Thy only begotten Son, our Lord and Saviour, Jesus Christ, by His apostles and His saints. But Thou hast also ordained to measure out thy mercies in the ordinary ways, through the interventions of our fellow-servants whom Thou hast called to minister to the sick and the blind and the lame and the deaf and the dumb. Oh, what a sacred and responsible office Thou hast confided to Thy physicians. Inspire them, we pray, with a deep sense of their holy calling, illuminate their minds by Thy divine intelligence, strengthen their weakness by Thy almighty power, and warm their hearts by Thy uncreated love; fill also, we pray, the hearts of all here present who aid and assist them in distributing the mercies of Jesus Christ for the sick, the poor, and the afflicted, that Thy will may be done on earth as it is done in heaven. Amen."

Then followed the papers in the order of the programme; every paper on the programme was read by its author, and this is a significant fact as evidencing the interest that has been aroused in the subject of hygiene, for it rarely happens that a convention is held without the absence of some one who has been placed on the programme as an expected participant.

The Authority and Mission of the Local Board of Health.

BY MORITZ G. LIPPERT,

Vice-President of the Board of Health of Phoenixville, Pa.



THE establishment of Boards of Health in the smaller communities of our Commonwealth, called boroughs, is generally of such recent origin that few of these places have as yet become entirely used or reconciled to this so-called innovation, and I venture to say there are still many people that have not even a clear idea, either as to the *authority* or as to the *mission* of the local Board of Health. This, unfortunately, appears to be the case even in boroughs that had anticipated the Act of Assembly of May 11, 1893, as in our own borough of Phoenixville, Chester County, where the young nestling, hatched only about two and a half years ago, has already developed into full-

fledged and vigorous maturity ; for even there, where the experimental stage of the sanitary organization is a thing of the past, may still be found a large class of citizens composed of the ultra-conservative elements, sometimes ycleped "old fogies," who have no use for a Board of Health, and look upon it with distrust and in the light of an innovation, which they are strongly inclined to resent privately, as well as in public print.

Our own experience in Phoenixville bears out this statement, and were I to quote from the letters that appeared in our local press about the time of the original organization of our Board of Health, some of the arguments and criticisms used against the establishment of that body, I might be confident of infusing considerable hilarity into the serious proceedings of this convention.

"The idea," it was argued, "of saddling on a borough of eight or nine thousand people a Board of Health with a health ordinance voluminous enough for a city like New York."

It should be stated that our health ordinance, based on the most excellent *model ordinance* prepared by the State Board of Health, but abridged by us in some respects, embraced at that time forty-nine sections, covering not quite eight pages of octavo. Since then we have had occasion to supplement it, so that it now contains fifty-nine sections, very much to the utter dismay, no doubt, of the old fogies before mentioned.

"What is the use of a Board of Health?" they queried. "We've got along without it these many years, and have never felt the want of it!" No doubt, gentlemen, you have all heard similar arguments quite in the line with those generally advanced in opposition to any public improvement, as, for instance, the electric light for street lighting, which is opposed on the ground that "our forefathers found hand-lanterns with penny dips or street lanterns with smoky oil-lamps good enough to light them home of a dark night;" or, as another instance, the purification of the public water-supply, which is objected to, because "the water has always been good enough" (forgetting for the moment the frequent complaints of the dirty color, or fishy taste, etc.), "and as for typhoid fever, why, we have never had an epidemic here yet, and our town is healthy enough without a filtering plant, and the new-fangled Board of Health in the bargain!"

Ridiculous as such talk may seem, I assure you, gentlemen, that I myself have heard this very argument addressed to

me by a man who stands high in the community, has been a prominent officeholder under the government, as well as a borough official, and is one of the local leaders in his party.

Such arguments might be quite amusing if they were not at the same time discouraging to the man of progressive tendencies, who has, indeed, frequently a pretty hard road to travel. Only too often has he his enthusiasm squelched, his "conceit" taken out of him, sees his idols shattered, and is tempted to give up in disgust and despair, till his innate pluck reasserts itself, and he resumes with renewed vigor the battle against old-fogyism and obstruction.

So, too, with the Board of Health as a body. While, on the one hand, it has to overcome the direct and positive opposition of this ultra-conservative element, it hardly ever becomes aware of any active support even by its own friends, who, while on the whole in sympathy with progress and public improvement, are, I am sorry to say, too indifferent and indolent, and sometimes, perhaps, even afraid to come out openly and publicly to the support of the board. Having helped to establish a Board of Health which it is their sincere opinion the borough stands in need of, they believe they have done all that could possibly be expected of them, and relapsed into a state of lethargy, from which scarcely anything short of a public calamity, as, for instance, a great epidemic, could arouse them and array them in active support of their Health Board.

Thus, thrown upon its own resources within the community, the local board welcomes the moral support which it receives at the hands of the State Board of Health, as, perhaps, the only kind of encouragement it ever experiences, and for this reason, if for no other, this conference between the State authorities and the local Boards of Health should be considered a wise and happy step, well calculated to bring the latter in harmonious touch with the State Board and with each other, enable them to compare notes and establish between them throughout our great and beloved Commonwealth a band of solidarity and fraternity, from which they, each and all, will derive encouragement to persist in their common labors for the benefit of their fellow-citizens.

But to come back to the *authority* and *mission* of the local Board of Health, to which I alluded in the introductory paragraph as not being clearly understood by a large proportion of our people. Suffice it, then, briefly to state, for the benefit of

these, that the local board derives its *authority* directly from the State by the Act of Assembly of May 11, 1893, which defines the powers, prerogatives, and duties of the local board in clear and unequivocal language. Under this Act the board ranks as a co-ordinate branch with the Town Council, on which body it is dependent only for the appointment of its members, the approval of its rules and regulations, and the appropriations necessary to the proper discharge of its duties and transaction of its business. Thanks to the wise legislation embodied in the Act referred to, the local Board of Health now enjoys a standing far different from that which it formerly held, when created wholly at the pleasure of the Town Council, and subject to its control in every respect, whereas the new law makes it *incumbent* upon the Town Council to appoint a Board of Health, the powers of which, however, are derived directly from the State.

So much as to the *authority* of the local Board of Health, the correct appreciation of which, on the part of the people, would go far towards securing to it that degree of respect within its sphere of action and jurisdiction to which it is clearly entitled, and also towards lessening the prejudice against it.

If the Act of Assembly referred to above, on the one hand, defines the *authority* of the local board, it gives us, on the other hand, a general idea of its *duties* and *responsibilities*, which may be comprised in the few words: *The preservation of the public health*. This, then, I take it, is the *mission* of the local Board of Health, and, I ask, can any one imagine responsibilities of a graver character than are embodied in these few words? Surely, there is no branch of our municipal government charged with duties paramount in responsibility to those of *preserving the public health*. This proposition may, perhaps, be better understood when we consider, *first*, the importance to the individual of his own health, which he values far above all earthly goods; and, *secondly*, that the term "public health" represents, in a collective sense, the health of every individual within the community. If, then, the responsibility be already great, when the health of the individual only is concerned, how infinitely greater must it become when we have to deal with the health conditions of the whole community?

How can this mission be best fulfilled?

Although the board be fully clothed with the necessary powers to discharge its duties, it can hardly expect to accomplish

any practical success without the moral support and the active co-operation of the public at large. And yet, in view of what I have said of the prevailing prejudice against the board on the part of its opponents, and the apathy of its friends, such support and co-operation could hardly be forthcoming under existing conditions.

Hence, before the board can embark upon the successful fulfilment of its *principal mission*,—the *preservation of the public health*,—it would first have to accomplish the *preliminary task of educating the people to a full understanding of the necessity for the existence of a sanitary authority*.

How to accomplish this task is, perhaps, not easy to see at a glance, especially if we consider that we have to reckon with the unwillingness to be educated in this direction on the part of those with whom it is a foregone conclusion that the Board of Health is an innovation, established simply “to worry and annoy the people, and to add to the already heavy burden on the shoulders of the tax-payer.” It is obvious that it will require more than the persuasive powers of the board itself to overcome this prejudice and convert its opponents into disciples. Hence the board would have to rely largely upon assistance from outside sources, and in this connection it is difficult to conceive of three more powerful allies than the *medical profession*, the *press*, and the *school*.

As to the *medical profession*, it certainly could be and undoubtedly is, in many instances, of most valuable assistance to the board in the performance of its important work, from the fact that the physician occupies a certain privileged position in his relations to the families under his medical care, these relations being frequently of as intimate a character as those of the minister, if not even more so. Hence he enjoys in a high degree their respect and their confidence, and, as an expert in medical affairs and hygiene, his opinion will have great weight with them. Thus he can exert much influence, either in favor of or against the Board of Health, by prejudicing his patients and families for or against that body just as he may happen to be inclined. Fortunately, the medical profession is largely composed of men of high aims and ideals, who take pride in their profession and have a fitting conception of its grave responsibilities. These men will invariably be found on the side of and in harmony with the board, and may be counted upon for their active support, if properly appealed to.

Turning next to the *press*, I believe it to be a fact that its management throughout the State is in the hands of intelligent and progressive men, fully alive to the importance of sanitary legislation and supervision. If this "*power of the pen*" could be enlisted and interested in the cause of public sanitation, it could certainly exert a powerful and wholesome influence on public opinion, and bring about a marked improvement in the existing prejudice against the local health authorities. Here, too, then, I believe, an appeal to that great power, the *press of the Commonwealth*, to co operate with the local Boards of Health, could not fail to be prolific of excellent results. The proper method of such practical co-operation may, I think, be safely left to the intelligence, ingenuity, and good sense of the editors. Suffice it here to point out that it may take the form of appropriate editorials on the necessity of public sanitation and sanitary supervision, of original communications to the local papers by members of the local boards, or others interested in the cause, or of reprints of suitable articles and essays from sanitary and hygienic publications.

Besides the *medical profession* and the *press*, I have named, as a third factor of public education, the *school*, paramount in importance and influence to either of the two first named. It is gratifying to find that, as regards the co-operation of the public schools, the ice is already broken and the good work well under way. It appears that *physiology, hygiene, and sanitation* now form a special branch of instruction in all the public schools of the Commonwealth. Whether quite enough attention is given to public as well as private sanitation, I am not able to say. If not, it should not be a difficult matter to interest the Superintendent of Public Instruction and the School Boards in the matter for the purpose of extending the instruction in these particular branches. It stands to reason and does not require a moment's argument that instruction in these branches will familiarize the rising generations with the public needs in sanitary respect. They will grow up well prepared to comprehend the significance of public sanitary supervision and the necessity for local Boards of Health. They will be able to appreciate the aims and the mission of this branch of the municipal government and to sympathize with its efforts to fulfil the same; hence they should be found ready to array themselves on the side of sanitary progress and in cordial support of the local Board of Health.

The inestimable value of co-operation coming from such sources conceded, it seems to me no effort should be spared to secure it in the fullest measure. Hence, I venture to make the respectful suggestion, that this Convention, either through the State Board of Health, or through a committee specially appointed for that purpose, address appropriate appeals to the medical profession, the press, and the Superintendent of Public Instruction, as well as the local School Boards throughout the Commonwealth, for the purpose of arousing the interest of these educators and moulders of public opinion in our work, and of securing their cordial and earnest co-operation in our great mission. With such co-operation the battle with prejudice and obstruction will be more than half won, and the Board of Health will be able to devote its undivided attention to the performance of its principal mission, which I have already defined in general terms as "*the preservation of the public health.*"

But how can we best accomplish this task of preserving the public health?

The science of hygiene teaches us that the three principal requisites for the promotion of health are: *Pure air, pure water, and wholesome food.*

It would, therefore, lie within the duty of the local Board of Health to prevent or remove any cause tending to render the air, water, or food impure or unwholesome.

This would involve, in the first place, the sanitary supervision of all habitations, especially the tenement-houses, which the board should require to be properly lighted, ventilated, and drained, and prevent from becoming overcrowded. It would involve, further, the sanitary inspection of cellars, back-yards, alleys, and out-houses, in order to prevent any accumulation of house refuse, garbage, or other organic waste matter, all of which should be disposed of, so as not to become a public and disease-breeding nuisance. To accomplish this, the town should, if possible, provide a crematory, where all garbage and organic refuse should be burned at public expense.

Slaughter-houses and bone-boiling establishments should be subject to the control and inspection of the Board of Health, and should be provided with the necessary apparatus to prevent them from becoming offensive or prejudicial to the public health.

Malarial and miasmatic conditions should be counteracted by the filling up of low and marshy ground and proper drainage of the subsoil.

Attention should also be given to proper house-drainage, and the plumbing in dwellings should be done under the supervision of the Board of Health and in accordance with the requirements of sanitary science.

The Board of Health should also urge upon the borough authorities the construction of a complete system of underground sewerage, where such does not already exist, such sewerage system to be provided with a modern plant for the proper disposal of the sewage. At any rate, the sewage should not be allowed to be drained into any river, or tributaries thereof, the water of which may be used for the supply of the public, and every local board should interfere to prevent such pollution of the public streams.

At the same time, wherever the purity of the public water-supply is not above suspicion, the board should make strenuous efforts to have the municipal authorities establish, in connection with the water-works, a plant for the purification and filtration of the water.

There should also be a certain amount of supervision by the sanitary authorities of the food-supplies sold publicly, and no meat, vegetables, fruit, or milk, unfit or unsafe for use, should be allowed to be offered for sale.

Closely allied to these measures for the preservation of the public health are the measures for the *prevention of the spread of communicable diseases*. Chief among these are the following :

All cases of communicable disease should immediately be reported to the Board of Health by the attending physician, and should be subject to the inspection and supervision of the board or its officers. Infected houses should be placarded and, if necessary, quarantined. Children of families, where communicable disease exists, should be excluded from attendance at the schools by the teachers, except upon a certificate from the attending physician, stating that danger from communication no longer exists.

In case of an epidemic of small-pox, vaccination should be enforced or, at least, facilitated as much as possible by the board by providing it free of charge to those unable to pay for it, and no pupil should be admitted to any school, public or private, unless successfully vaccinated within a reasonable period.

Funerals, in case of death from communicable disease, should take place within thirty-six hours after death. The public notice of the death in such cases should give the name of the disease causing the death, and on no account should a public funeral be allowed to be held.

Whenever necessary, the board should take charge of the burial and of the preparation of the body for the same, as well as of the disinfection and fumigation of the premises after the removal of the body.

Whenever the prevalence of a contagious disease within the community should assume an epidemic form, the Board of Health should provide an emergency hospital for the treatment of such cases as cannot receive the proper attention at home. These hospitals should be established and maintained at the expense of the community, although patients able to pay for board and treatment received therein, should be made liable to reimburse the hospital.

I have cited here what I consider to be the most important measures to be observed by the health authorities for the purpose of preserving the public health and preventing the spread of contagious disease. Of course, there may be many other valuable rules of scarcely less importance, but time and space forbid my enlarging upon this subject. All of these measures should, however, and, no doubt, are already in the case of most of the local boards of this Commonwealth, embodied in a code of rules that should receive the sanction of the Borough Council, as specified by the Act of Assembly, in order to give it the force of an ordinance.

This done and the code of rules published in the usual way of publishing ordinances, *nothing remains but for the Board of Health to enforce these rules.*

And yet, simple as this may sound, it is really the most difficult part of the duties of the board, requiring a large amount of impartiality, fearlessness, and back-bone. It is, indeed, a duty much harder to perform in a small town than in the larger cities, where officials are not so apt to be thrown in social or personal contact with private parties, where the authority of the office covers the little shortcomings of its incumbent, or where, to use a common phrase, the office makes the man, whereas in the small town the reverse obtains and the man makes the office, for by reason of his familiarity with everybody (and we know familiarity is apt to breed contempt) it is much more difficult for an official to assert his authority and inspire his fellow-citizens with the proper respect for his office. Moreover, personal considerations, ties of friendship, social connections, business relations, etc., all tend to hamper him in the proper performance of his duties,—viz., the enforcement of the borough laws and sani-

tary rules. He lacks, so to speak, the nimbus of authority and official independence that surrounds the city official. Nevertheless, this difference should not be allowed to operate to the disadvantage of the borough official, and especially the health officials. On the contrary, it should be counterbalanced by the moral support, the active endorsement of and cordial co-operation with the Board of Health by all good citizens.

Captious criticism, petulant fault-finding, though it had best be ignored by the board itself, should be rebuked by public disapprobation on the part of the press and the good citizens generally.

Encouragement should be given the board from time to time by public expressions of approval of its efforts and achievements, for the board needs all the encouragement it can get to make it persevere on its course of sanitary reforms, which is at best uphill work and beset with innumerable difficulties, and I know of nothing more discouraging to a public official, at least the one that finds his only reward in the honest and conscientious performance of his duties, than the utter apathy of the public towards his efforts.

In concluding my remarks, I only wish to add that I have endeavored in this paper to give my definition and my ideas of the authority and mission of the local Board of Health, as I interpret these terms. I have also seen fit to touch, in passing, on other matters of a kindred nature, that may, perhaps, have proved of some interest to my hearers. I do not flatter myself of having enunciated any new ideas or original views upon a subject with which you all must necessarily be acquainted. If, however, it shall lead to a discussion, tending to throw further light on a subject alike important to all of us assembled here, and, at the same time, arouse, perhaps, some interest in our work beyond the limits of this convention, my end will have been attained, and I shall be more than repaid for my humble efforts to contribute to the deliberations of this distinguished body. My deep interest in, and devotion to, our great and common cause must serve as my apology for having yielded to the invitation of the honorable chairman of the Committee on Arrangements and for having thus trespassed upon your time and forbearance.

The Management of Contagious and Infectious Diseases by Local Boards of Health.

BY WILLIAM H. FORD, M.D.,
President Philadelphia Board of Health.



THE three grand agencies employed in the prevention of disease are the *personal*, the *municipal* or *local*, and the *central* or *governmental*. Of these three agencies, the personal is unmistakably the most important. As Richardson remarks, "It is so important that if, as an agency, it could be made perfect, all else would sink into mere nominal position, or would, at most, consist of formal administrative labor. As, however, it is impossible to secure such personal perfection, the other two agencies are, perforce, demanded, and of these two the local is, in my opinion, pre-eminent.

"The local government of the place is the health of the place. Each place must be ruled into health by those who know, and know best, the wants, the necessities, the feelings, and the failings of each individual centre. To try to make all the separate centres and towns of our land perfect in salubrity by directions and instructions from a central government-control is to give up permanent local reform in this direction altogether. There are in a locality sufficient obstacles in overcoming mere local traditions and sympathies to render hopelessly impossible urgent reform pressed from a distant quarter, where there is no local knowledge of sympathies and no sympathies with them.

"For the local work there must be the local power; power which the local authority shall be proud to exercise with knowledge and wisdom; power which shall be in its way competitive, and which shall have the effect of stimulating competition until health, like leaven, has leavened the whole of the national life."

It is not intended to disparage the value of a central or national board of health or of State boards of health. In my opinion these have most useful and exalted functions, and are, therefore, indispensable to good sanitary government.

The national board should be to the whole country what the State board is to the whole State. It should be a board of refer-

ence, an investigator of all national health problems, and a foster-mother to all national health-protective legislation. It should be competent to advise on all sanitary matters, capable to arbitrate on disputed and conflicting sanitary questions, and be so clothed with wisdom and scientific dignity as to command universal respect.

The State board should be a counterpart of the national board, except that it has a narrower range of action and a more intimate relation to localities.

In the developmental stage of sanitary government in this country, the State Board of Health must of necessity exercise special supervision over localities, and at times assume such duties as would be performed by local boards, did they exist. One of their functions is to supply local deficiencies until such time as local organization shall have been perfected, when these functions cease.

As an illustration of the wonderful impetus given to sanitary organization, of the popular interest aroused in favor of good sanitary government, and the advancement of measures for the protection of the public health, I need only refer to the brilliant record of our own State board, which, though among those more recently organized, has won for itself a prominence and respect which has placed it in the front rank of similar organized bodies in this land.

In the prevention of zymotic diseases, all of the agencies above-mentioned will be required to be brought into operation. "There must be personal endeavor, there must be local authoritative endeavor, there must be central authoritative endeavor, all acting in harmony together." As said before, the personal agency is the most important, and this must be encouraged, secured, and ruled into activity, if needs be, by local administrative authority. With these two prominent agencies co-operating, there remains little for the central authority to perform. Of course, there are other correlative matters of sanitary administration, such as the regulation of maritime and inland quarantine, the supervision of diseases in animals liable to be communicated directly or indirectly to man, and like questions, which properly come within the direction and control of the central authority, either State or national.

In the management of contagious or infectious diseases by local boards of health, it is presumed that such boards are clothed

with ample authority, by legislative enactments, to apply unhampered the best-known measures of restriction and prevention, and that they are provided liberally with the necessary means for carrying such measures promptly and effectively into execution. In describing the duties of local Boards of Health in the management of those diseases, it is necessary to go into details for the reason that the neglect of details so often leads to failure in otherwise well-directed efforts.

The list of diseases which demand the watchful supervision of the authorities is fortunately not a long one; but it is a most impressive one. It comprises small-pox and varioloid, scarlet fever, diphtheria, epidemic cerebro-spinal meningitis or spotted fever, typhoid fever, typhus fever, relapsing fever, cholera, yellow fever, and leprosy. These diseases are the most distinctly preventable, and they are, therefore, sometimes specially called the *preventable* affections. Some of these are constantly present in our large towns and cities; others recur at longer or shorter intervals; others again are rarely encountered in this latitude, they not being indigenous diseases, but depending upon favorable conditions for their introduction from abroad.

The question of the advisability of requiring tuberculosis to be reported to boards of health, for the purpose of the authoritative supervision of measures of prevention, is one which, at the present time, is agitating many communities. It is generally conceded that tuberculosis is an infective disease caused by the *bacillus tuberculosis*; that it is largely spread by means of the dried sputa of the sick, and that its prevention is possible by the rigid enforcement of prophylactic measures. Hence, boards of health should endeavor to limit the spread of the disease by the enforcement of measures of prevention.

On the other hand, it is claimed that it would be an unnecessary and cruel hardship to fix the brand of leper upon the unfortunate sufferers from this disease, and follow them through, possibly, years of weary suffering by official espionage, for the authorities can do no more than the attending physician is capable of doing in instructing and supervising as to prophylaxis; and as the only risk, practically, is from the sputa, its destruction can be satisfactorily accomplished without the intervention of the board of health. There is much truth in both sides of the argument, but, if we mistake not, the day is not far distant when individual effort will require to be backed by local administrative authority in the limitation of this disease.

The local Board of Health should have immediate knowledge of every case of contagious or infectious disease occurring within its jurisdiction. The *early recognition* of the first cases of contagious or infectious disease is of the greatest value, as upon it will often depend the possibility of preventing its spread. It is important not only that these cases be early recognized, but when recognized that they be immediately reported to the local health authorities in order that measures may be employed at once to prevent the scattering of seeds of disease. *Prompt notification* is a step so necessary to the precautionary supervision of contagious and infectious diseases that in communities where good sanitary organization exists, it is made obligatory by penal statute. Whether the obligation to report such cases be placed upon the physician or upon the head of the family is a matter of secondary importance; but it would seem that the physician is the proper person upon whom this duty should devolve, since he determines the nature of the disease, understands the necessity and value of prophylaxis, and requires the co-operation and support of the authorities in insisting upon the immediate and continuous use of protective measures; and, moreover, he is less influenced by personal motives for concealing the true nature of the disease.

Notification should be by printed blanks furnished by the local board, containing necessary queries, which, when fully answered, form a complete descriptive list of the case, thereby avoiding delay in executing the proper measures. The name, age, sex, color, disease, and location of the patient should be correctly stated, and information should also be given of the vaccinal status of the inmates of the house,—if the disease is small-pox, of the sanitary condition of the premises; as to whether the patient should be removed to a hospital, whether the house is a private or public house, and briefly, of such other matters as may be pertinent to the question of prophylaxis.

Objection has been made to the imposition of this duty upon physicians without compensation; but this seems to be an unmerited reflection upon the medical profession, always foremost in benefactions, and self-sacrificing in their labors to prevent and alleviate human suffering and benefit their fellow-creatures.

Notice should be immediate, and in person or by representative, especially where prompt action is required; valuable time is often lost by trusting to the mail.

The *object of notification* is to enable the sanitary authorities

at the very outbreak of the disease to inquire into all the circumstances of the case, to co-operate with the medical attendant in his efforts to prevent the spread of contagion, and, when necessary, to resort to such measures to protect the public health as it is the prerogative of these authorities alone to perform.

Whenever it comes to the knowledge of the local health authorities that a case of dangerous, contagious or infectious disease exists, it is their duty to at once cause a *thorough inquiry* to be made into all the particulars of the case by a sanitary inspector qualified for the responsible duty by experience and sound medical training. The inspector should consult the medical attendant, and satisfy himself as to the true nature of the disease, learn its history and origin, and acquaint himself with the surroundings, the plan of isolation, and other means employed to prevent the spread of the disease. He should determine upon this examination whether the patient can be properly and safely cared for at home, with respect to the patient himself, the occupants of the house, and the public. If from poverty or inadequate facilities for managing the case, or the impossibility of isolating the sick person, or if for any sufficient cause, this cannot be done, it is his duty to at once recommend the *removal of the patient to a hospital* for the treatment of such diseases. After the removal of the patient, which the authorities should be empowered to direct, prompt and thorough disinfection and other precautionary measures should be carried out under the direct supervision of the inspector. The premises should thereafter be kept under close observation until the period of incubation, dating from the latest exposure to contagion, has passed.

On the other hand, when the inspector finds that every necessary measure of precaution is being faithfully carried out and that the sanitary management is satisfactory, he will report the fact and keep the case under observation. Between these two classes of cases there are those not so easily disposed of, in which the course of action to be pursued will have to be determined by the best judgment of the inspector according to the circumstances.

A responsible member of the household should be clearly advised as to all necessary requirements; but lest these verbal explanations be forgotten or misunderstood, *printed instructions*, explaining in plain language the nature of the disease, its mode of propagation, the means of isolation and disinfection, and all the precautionary measures necessary to observe from the begin-

ning to the end of the disease and thereafter, should be left with the family of the sick in every case, and explained when necessary.

Great care should be exercised in *selecting* for *inspectors* men who are specially qualified by professional ability, character, and discriminating judgment, otherwise discredit may be reflected upon the service and its objects thwarted.

The *duties of the inspector* are delicate as well as responsible. He has nothing whatever to do with the medical treatment, and comment thereon, especially before the family, is out of place. He should respect the rights of the medical attendant and should endeavor, so far as possible, to make his visits at the time when the physician is expected to be present. While nothing necessary to be known should escape observation, he should be careful not to excite opposition by inquiring into matters that do not strictly pertain to the object of his mission. By tact and politeness it is possible, in nearly all instances, to obtain the co-operation desired. When, however, through ignorance or prejudice or for whatever reason, the instructions of the inspector are disregarded and measures of precaution are ignored, steps should at once be taken to compel obedience. *The sick* should be *isolated* either at home or by admission to a special hospital. Every community should provide a hospital for contagious diseases, and, where feasible, each disease should be treated in a separate pavilion. In locating such a hospital, convenience of access should be a prime consideration. In transferring a patient it is not permissible to use a public conveyance, but an ambulance so constructed and equipped as to insure comfortable and safe transportation. Disinfection of the ambulance after each time it has been used should not be neglected. Every effort should be made to overcome the prejudice against removal to a public hospital which so commonly exists. If the transportation, accommodation, care and treatment of the patient be without fault, and the expense nominal, opposition to removal will be reduced to its lowest point. It is detrimental to the patient and to the service to resort to compulsion, yet there are circumstances which fully justify it.

In cities it is rarely the case that more than three or, at most, four diseases of the class under consideration are treated in hospital at the same time, and, therefore, four separate buildings are all that are required for ordinary demands. For sudden emergencies, resort may be had to *wall tents*, securely set up and floored

over, which are admirably adapted for the purpose. Their advantages have been recently tested by a neighboring city with great satisfaction. When no longer needed, the tents and appurtenances can be purified by treatment in a steam-disinfecting chamber, and held ready for future use.

It is impossible to treat different contagious and infectious diseases under the same roof without the risk of intercommunication of disease, hence the necessity of providing *a separate building for each distinct disease*. In small towns, where more than one of these diseases is rarely treated in hospital at the same time, a single building will answer the purpose, except in special emergencies.

It may be of advantage to some to know that *portable pavilion hospitals* are constructed, which can be procured at short notice and at small cost. Such a building has recently been erected in Philadelphia for the accommodation of small pox patients in ordinary visitations of the disease. Its capacity is twelve beds and its cost about one thousand dollars. Small hospitals are better than large ones, being less expensive in their original cost and in their management, and, what is more important, less likely to spread infection by concentration of the sick.

It is advisable to *remove* the *well persons* in the family from the house when practicable, if there is reason to suppose that they have not become infected. Intercourse with the house should be restricted or prohibited altogether, according to circumstances. The inmates are not to visit or attend public gatherings, and children of the family are to be prohibited from attending school until all danger of communicating the disease has passed. Isolation of the sick is practically seldom perfect, and it is therefore prudent to act upon this assumption. Inspection should be sufficiently frequent to determine whether these precautions are observed. When there is reason to mistrust compliance with them, there is the alternative of removing the patient or of placing a watchman on duty to compel obedience to the law.

The sanitary inspector should satisfy himself that all the details in the *preventive management of the case* are being strictly carried out under the direct supervision of the medical attendant. When he is not thus satisfied, it is his duty to interfere to the extent of personally directing the necessary measures to be observed. Isolation of the sick person, thorough cleanliness, ventilation, and disinfection of the discharges, and of everything

before it leaves the sick-room, must be insisted upon. *The sick-room* should be one of the upper rooms of the house, the farthest removed from the rest of the family, where is to be had the best ventilation and isolation. It should be free from all unnecessary articles of furniture, curtains, and hangings.

Ventilation can be best obtained by means of open windows, fires, and open fireplaces. The latter are of untold value. The admission of light must be permitted, except in special cases. The attendants should be as few as possible. They should be dressed suitably in garments of light-colored washing material. They should not associate with the family or others until after purification. Printed directions as to these various observances, to be left with the family for reference, will be of the greatest assistance to them in comprehending what is required to be done.

The prompt *purification of the sick-room* after the termination of the disease cannot be too strenuously insisted upon. Everything that admits of destruction should be put on the fire. Articles of clothing and bedding that can be properly treated on the premises should be plunged into cold water, and carefully wrung out before being carried through the house. They should then be plunged into boiling water, and after boiling for twenty minutes they may be covered until cold, and then washed in the ordinary way. It is best to strip off the paper and burn it, and then treat the walls and ceiling with carbolated whitewash. Rubbing the walls with bread-crusts is a practice thought well of in Berlin. The crumbs and all dust should be brushed up and burned. Washing the wood-work and furniture with a solution of corrosive sublimate 1 in 1,000, followed by a thorough scrubbing with soap and water, is advised. As an additional precaution, fumigation with sulphurous acid gas, 3 pounds to 1,000 cubic feet of air-space, may be practised. Finally, the room should be well aired for several days by throwing open the doors and windows.

There are some articles used in the sick-room which it is practically impossible to disinfect on the premises, such as mattresses, beds, pillows, carpets, etc. Disease is frequently spread by the inadequacy of the methods employed at home, or by sending the articles to the upholsterer. It is therefore absolutely indispensable that the local board should provide adequate facilities for disinfection to meet this common demand.

Steam-disinfecting chambers, constructed preferably of steel, in which articles can be disinfected by dry or moist heat at a

given temperature, are indispensable in the management of contagious or infectious diseases. Every community should possess one or more disinfecting plants, and their use should be offered the poor gratuitously, and to those able to pay at a nominal charge.

While the sanitary inspector should have knowledge of the *principles and practice of disinfection*, so as to be capable of giving instruction, it is not expected that he should personally do the work. The health department of a city is not deemed fully equipped unless it includes in its *personnel* one or more disinfectors. "The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. This is accomplished by the use of disinfectants. There can be no partial disinfection of such material, either its infecting power is destroyed or it is not. In the latter case there is a failure to disinfect." On account of the great importance of having this work properly performed, it is necessary to intrust it to persons specially qualified by knowledge and experience. The disinfectors should be under the direction and control of the sanitary inspectors, who should be held responsible for the faithful performance of the work.

It is not intended that the disinfector shall obtrude his presence in the sick-room during its occupancy by the patient, as the medical attendant can supervise the necessary measures there required. But after the termination of the sickness it is his duty to personally take charge of the disinfection of the sick-room and the premises, to superintend the removal of such articles as are required to be taken to the public disinfecting-chamber, and to see that all the details of the work are properly carried out. He is to supply the necessary apparatus and materials when needed.

Careful discrimination is required on the part of the sanitary inspector in regard to cases coming under his observation. It is only in such cases where he is satisfied that the work cannot be properly performed without his intervention that he is justified in employing the services of the disinfector.

It is the duty of the sanitary inspector to follow each case to its termination. In the event of death, he is to see that all regulations governing such cases are strictly observed, especially that no public funeral takes place. In any event, he should satisfy himself that every necessary measure of precaution is fully carried out.

There is a difference of opinion as to the advisability of *placarding houses* in which contagious or infectious diseases exist. There are benefits to be derived from warning the public of danger; but, on the other hand, the common aversion to the requirement may lead to the suppression of the true knowledge of the disease, which may be attended with disastrous consequences. Under a well-organized system of sanitary inspection this practice might be dispensed with.

Small-pox is prevented by *vaccination*. When a person is stricken with this disease, the greatest diligence should be exercised in tracing its origin, in locating all persons and things that have been exposed to the contagion, and in making use of the means necessary for arresting the spread of the disease. All unprotected persons should be promptly vaccinated, in order to prevent the disease or modify its character. Persons exposed to the contagion, although previously vaccinated, should, for the sake of prudence, have the operation repeated, unless the evidence of protection is undoubted. An epidemic may be prevented by the early recognition of the first cases, and the prompt application of the means of restriction.

The utmost vigilance is required when *cholera* threatens a community. Lest the true nature of the disease be overlooked on account of the similarity of the early symptoms of Asiatic cholera and cholera morbus, it is prudent to regard all cases of severe choleraic diarrhœa as suspicious, and to hold them under strict observation until a positive diagnosis is made by means of the results of a biological examination of the discharges. As it will take from twenty-four to forty-eight hours to make this test, during this time, and while there is a doubt as to its true nature, the case should be carefully watched, and the precautionary measures necessary in the management of Asiatic cholera be strictly carried out. When cholera is impending, every physician called to a case at all suspicious stands in a position of great responsibility, not only to the patient, but to the public. He should be wary, therefore, that no remissness be charged against him. He should report promptly his suspicions to the health authorities, and offer them his full co-operation.

When a case of Asiatic cholera occurs, it should be placed under constant sanitary surveillance, and every avenue by which the disease might be spread carefully guarded until all danger has passed. What is possible to be done at the very beginning of the

disease becomes a discouraging and formidable undertaking when once it has assumed an epidemic form. Hence, the utmost vigilance should be used with regard to all first cases, and everything should be done to prevent them from becoming foci of contagion.

After death by any of the dangerous, contagious, or infectious diseases, the utmost care should be exercised to prevent the further spread of contagion by the corpse. The body should be immediately enveloped (and remain so enveloped) in a sheet saturated with a reliable disinfectant, such as a 4-per-cent. solution of chloride of lime, or a 5-per-cent. solution of pure carbolic acid, or a $\frac{1}{10}$ -per cent. (1:1000) solution of corrosive sublimate, and be encased in a coffin lined throughout with raw cotton, of a thickness of not less than one inch, and tightly sealed. The funeral should be private, and burial should take place within thirty-six hours after death. *Cremation* is advised as a quick, complete, and safe means of disposal of the dead,—a means which ends forever the dangers that are constantly associated with inhumation.

The *transportation of the dead* by public conveyance should be strictly prohibited, and the disturbance of bodies after interment interdicted until complete disintegration has taken place.

The local board should *enforce regulations prohibiting* any person suffering from any dangerous infectious disease from exposing himself in any street or public place, or in any public conveyance; prohibiting any person from lending, selling, moving to another place, or exposing, without previous disinfection, any bedding, clothing, rags, or other things which have been exposed to infection; prohibiting the letting of a house, or part of a house, in which there has been infectious disease, without having such house or room, and all articles therein liable to infection, disinfected to the satisfaction of the Board of Health; prohibiting any person suffering from any dangerous infectious disease from entering any carriage or other public conveyance without informing the owner thereof that he is so suffering, and making it a penal offence for the owner of such vehicle to offer the same for use after the conveyance of an infected person without thorough disinfection.

In certain emergencies, especially where there is reason to suppose that the existence of disease is being concealed, a *house-to-house visitation*, or personal inspection by discreet and competent inspectors, may be of the utmost value in discovering the

truth and in facilitating the use of measures for the extinction of an epidemic.

Not the least of the benefits derived from a strict *sanitary surveillance of the public schools* is the aid derived in preventing and suppressing dangerous communicable diseases. A prompt notification of the principal of any school of the fact that disease exists in the house where a school-child resides, and a similar notification of the disappearance of the disease, will be of great service in securing the necessary co operation of that official in efforts to prevent the spread of infection.

Insistence on the application of the *cardinal sanitary principles*—namely, cleanliness of air, cleanliness of soil, cleanliness of food, and cleanliness of water—need only be referred to in order to have their importance appreciated.

It is common knowledge that "filth breeds disease," and, in order to prevent disease, we must prevent filth. Therefore, the essential condition of the prevention of disease is cleanliness. As has been wisely said,¹ "Local sanitary authorities proceeding to act upon this principle, with a clear intelligence of what cleanliness really means, and with a sincere resolution to enforce it in their respective districts, can reduce by some tens of thousands the annual mortality, and this ought to be the aim of their existence."

Finally, *accurate records* should be kept of all cases of contagious and infectious diseases reported to the local board. These records should show the name, age, sex, color, and residence of the sick, the disease and its termination, and such other data as may be of value.

In this brief statement of the duties of local Boards of Health in the management of contagious and infectious diseases, I am fully aware that the subject has by no means been exhausted, but I think I have said enough to show its profound importance; and if I shall have given an impetus to discussion, which shall elicit knowledge of other and improved methods, and shall have been the humble means of extending the knowledge and practice of repressive and preventive measures, I shall be more than gratified.

¹ Substantially quoted.

Sanitary Engineering, or the Prevention of Preventable Diseases.

BY HOWARD MURPHY, C.E.,

Engineer Member of the State Board of Health of Pennsylvania.



THE Legislature of Pennsylvania, when it created the State Board of Health, determined that one of its seven members should be a civil engineer. Did they mean by this that the engineer member should be expected to do much more than one-seventh of the work of the board, or did they assume that correct engineering comprised only one-seventh of the great subject of prevention of disease and the preservation of the public health?

The writer, as engineer member of the board, has been for over six years chairman of its "Standing Committee on Water-Supply, Drainage, Sewerage, Topography, and Mines." Think of this title, which, notwithstanding its length, is not sufficiently comprehensive. Consider, however, only water-supply and sewerage, as these come closest to most of our homes. Count the cities, boroughs, towns, and hamlets of this great Commonwealth, to say nothing of the tens of thousands of scattered homes and other establishments in the broad expanses between these denser communities; consider that everybody must have water and must create sewage; consider the general carelessness as to the quality of the one and the disposal of the other, provided the senses are not offended; consider the insidious and far-reaching dangers that lurk in each, and the magnitude of the subject will be appalling.

What is the function of the State Board or any local Board of Health? To cure disease? No, that is the physicians'. It is to prevent disease, if possible, and, if this fails, to prevent or, at least, limit its spread. All disease cannot be prevented; man is mortal and must die; by violence, by the wearing out of the weakest vital organ, as in so-called death from old age, or from disease. Many diseases, for various reasons, cannot yet be controlled by public authorities; others can, and the list of these is slowly but surely increasing. What is indispensable to the absolute prevention of these diseases? Correct, comprehensive, and exact, in a word, perfect sanitary engineering. With a perfect water-supply, perfect drainage and disposal of wastes, perfect

ventilation, perfect selection of topographical and artificial surroundings, and perfect design and construction of homes and all buildings and conveyances, and last, but not least, perfect maintenance of all of these conditions, must insure, if universal, entire immunity from this great class of preventable diseases.

You are all well aware of the enormous percentage of the death-rate formed by diseases now conceded to be preventable, and your earnest and thoughtful attention is called to the means of diminishing it, which is the subject of these few remarks. You are asked, as responsible health authorities, to observe and investigate the conditions of earth, air, and water which you are now, perhaps, with little solicitude, permitting, without action or even protest, to surround your own families and those under your official care. Have you a water-supply and drainage system in your borough? Are they what they ought to be? If you think so, upon what data do you base your opinion? Is your proof that they are exactly right, or as nearly right as practicable, based upon such knowledge and testimony as would satisfy you if, say \$1000 of your own cash was involved in the correctness of your conclusion? If you cannot positively say yes to this question, are you doing your duty, as a member of a family and a responsible public officer, if you satisfy your conscience with guessing that your said conditions "are about as good as in most other communities," that our "death-rate compares favorably" with others, etc.? What efforts can you conscientiously spare when even one human life is at stake?

Surely none of us would place a limit upon our duties in these matters; but are we not too greatly influenced by the monumental negligence, and worse, that we must observe, and satisfied because we are doing a little better than those who should set us a good example. The great City of Philadelphia, for instance, is now arranging to pump more water from the open sewer Schuylkill, notwithstanding it has almost the highest percentage of disease and death from that great water disease, typhoid fever, of any city in the world; notwithstanding that the City of Reading, with nearly 60,000 people, is actually building a house sewage system without knowing to this day what they are going to do with the effluent thereof, except that they propose to empty it into the already horribly polluted water-supply of Philadelphia, and that of Conshohocken, Norristown, Phoenixville, Pottstown, Royersford, and Spring City, and all this and much more,

notwithstanding that, for a mere song per capita, an almost ideal water-supply can be introduced into Philadelphia and surrounding towns from the upper Delaware, to say nothing of other good and available sources. Were this question put to a popular vote in that city of 1,000,000 inhabitants there would not be 1000 honest votes in favor of continuing to drink the disease-breeding filth from the drain of one of the most populous valleys of the United States.

Somewhere here is a mountain-chain of ignorance, indifference, laziness, meanness, and criminality. But can you conscientiously say that the same conditions do not prevail on a smaller scale in the borough or city which you represent in this convention? Have you ever been and do you keep thoroughly informed? Was your water-supply, for instance, ever what it should have been, and, if so, has it not deteriorated?

Can you answer these questions, and, if so, how and why do you know?

The Plymouth epidemic is a much-quoted illustration of the disastrous effect of neglect of the institution, practice, and enforcement of correct sanitary engineering, but thousands of others exist, and to one of these deserving special mention your particular attention is called. A full account of it appears in the report of the Massachusetts State Board of Health, January, 1891. Typhoid fever broke out in Newton and Watertown among the customers of one milkman, and it was not learned that there were any other cases in the latter city among the customers of some sixty or more other milkmen. Investigation showed that, on account of the failure of this milkman's water-supply, he had used water from the house of a neighbor where four cases of typhoid fever existed, and that he had used this water to wash his cans without bringing it to, and keeping it at, the boiling point.

This case is well worth reading in full, as almost everything published by the Massachusetts Board is, for the Legislature of the State gives its board a sufficient appropriation to enable it to do decent work. But what does this case teach? It is notably confirmatory of the fact that typhoid fever is a water-supply disease, for this epidemic was directly traced to it. It shows that this disease is independent of atmospheric and all the other conditions which surrounded the other residents of the scattered neighborhoods in which his customers resided. It shows that if this milkman had been compelled to adhere to sanitary engineering

principles he would have given this water a prolonged boiling before he used it, so that any portion of it might come in contact with an article of diet. It shows that there would have been no typhoid germs in this water if the premises from which it was obtained had been arranged and maintained by the competent sanitary engineer. The well would have been built so as to exclude surface drainage, and the cesspool, house, and other drainage fixtures, so that no sewage could escape into and pollute the soil, but so that it could be readily removed to safe and convenient places of disposal.

Neglect of the occupant to become informed as to what he should do, and failure of the laws or health authorities, or both, to compel him to do just right in what would have seemed to be matters of trifling and remote danger, created an epidemic of disease which may be transmitted from person to person for many years to come.

Is the water-supply of your locality free from not only one, but many, dangers of this kind? If but one such danger exists, are you doing your duty if you rest until it is abolished? Do you realize, too, that this is but one of numerous dangers which threaten those under your charge if correct and complete sanitary engineering work has not been done, and is not being maintained, in the locality for the public health of which you have so large a share of personal responsibility? Do you take the interest you should in this subject? Have you the ability and facilities to ascertain, recognize, deal with, and remove the sources of danger that surround your community, or not having it, have you taken the proper measures to obtain it? If not, why not?

Reimbursement for Property Destroyed by Health Officers.

BY J. H. McCLELLAND, M.D.,

Member and Ex-President, State Board of Health of Pennsylvania, Pittsburg, Pa.



THE question of paying for damage done to individuals in the efforts of health officers to protect communities from the spread of contagious diseases, presents itself to us not only as a measure of public justice, but also as a measure of public health. When the property of an individual is destroyed for the salvation of a community, one would naturally suppose that community would hasten to make good the loss. This would be the equity of the case, and appeals to every man's sense of justice. But I go further, and contend that the prompt payment by State or local authorities for losses sustained by individuals, when the health officer deems it necessary for the safety of the community to step in and destroy their household goods, is also a sanitary measure of the first importance.

I wish to admit at the outset the existence of what is known to common law as police powers, and that the exercise of these powers in certain well-defined instances is perfectly right and proper. The propriety of such an extraordinary function of government, I think, requires no argument. The object of government is to impose a certain degree of restraint upon individuals when it is necessary for the public good. Private rights must give way to public safety, and the individual may be "subjected to all kinds of restraints and burdens, in order to secure the general comfort, health, and prosperity of the State." It has been called the law of "overruling necessity." It is plain that in case of extensive conflagrations the police power may enter upon a man's property and destroy it in order to protect the rest of the community from devastation. In case, also, of pestilence, this same police power, exercised by health authorities, may enter upon a man's property and destroy anything or everything that might prove inimical to public health. I am a firm believer in placing large discretionary power in the hands of health authori-

ties. The safety of the public demands it, and it should be exercised wherever it is found necessary ; not brutally nor unadvisedly, but with good sense and discretion.

But while the exercise of police power is sanctioned by common law, common law does not provide for a fair return to the injured individual for property taken or destroyed. Where, then, is the remedy ? Plainly in statutory enactment. A State or chartered municipality possesses the power to provide a remedy, and should not hesitate to do so in the interest of justice as well as self-preservation.

Superintendent Baker, of the Bureau of Health of Pittsburg, writes me that in cases of extreme poverty he appeals to the Department of Charity for means to replace destroyed effects.

A word as to the question of the justice of compensation in such cases. Take, for example, the case of a family consisting of parents and children, the father being the sole bread-winner for all. They have their house duly furnished at such expense as they can afford. By some mischance one of the flock is taken down with a contagious disease. The father, in pursuing his daily avocation, comes in contact with many other people, while the children attend the public schools. As a measure of safety to the public, the father must be called in from his labor, the children detained from school. The health officer very properly establishes a quarantine. The case progresses to a conclusion, and now comes the question as to what shall be done with much of the household effects of this family. One might naturally suppose that with a certain amount of disinfection the articles of household use might still be saved for the family, but the health officer, in the interest of the community at large, appears upon the scene and orders their destruction. Is this done to save the family ? Plainly not. It is done in the name of the community, for the purpose of saving the community.

This is an every-day case, and not an extreme one. Would it take one long to determine, upon ordinary rules of fair dealing and justice, who should replace the goods destroyed,—to determine even who should supply the needs of such a family while the head of the house was compelled to remain idle ? I think not. Every municipality, upon the appraisalment of the health officer, should make compensation for the damage done in its name and for its safety.

Now, if you please, a few words from the sanitary stand-point.

The occurrence of such a case as above related has a very strong bearing upon similar ones. There are many people, and intelligent ones too, who do not believe in the contagiousness of many diseases, so during the prevalence of diphtheria or some other equally contagious ailment their families mingle freely with the public. This is in accordance with what they were taught in their childhood. They say, if we report this case to the health authorities, they will at once come in and destroy our goods. We cannot afford this. The result is, facts are suppressed, members of the family come and go freely, and just as freely distribute the germs of the prevailing disease. The sufferers are the public. In just such a case, if it were known that the authorities would reimburse them for property destroyed, would even provide them with sustenance while necessarily quarantined, much of the objection to reporting contagious diseases would be removed, and as a result many an epidemic, carrying distress and disaster, would be nipped in the bud.

I am convinced that our Legislature would contribute much to the public weal if it would pass an enabling act, so that upon the recommendation of the health officer of a district, accompanied by an appraisement, the losses sustained by individuals for the destruction of their household effects would be paid for out of the public treasury, local or State.

Pennsylvania is not alone in this want of care for her citizens who have suffered from loss in this way, but I am happy to say that in many States, as well as the Dominion of Canada, restitution is made for property destroyed in the interest of public health. In fact, the principle of reimbursement for losses sustained by individuals in the interest of public health is acknowledged and enforced in our own State. It is well known that cattle destroyed by order of the proper inspector to prevent the spread of some contagious disease, or to prevent the cattle from being used as human food, is paid for out of the public treasury. Why this same principle should not apply to the case in question is more than I can answer.

In this connection, it may be interesting to know that the New York State Board of Health is now engaged in a crusade against diseased cattle, and are making every endeavor to ferret out all such as are infected, and are having them destroyed. The State pays for all the cattle thus destroyed. It is stated that the cost of this will not be less than \$500,000. This may cost the

State of New York some money, but it indicates that they have some idea of the value of human life in that good Commonwealth.

In replies to inquiries addressed to the various secretaries of State Boards of Health I have received much valuable information upon this subject, and I desire to make a cordial acknowledgment in this place for the prompt and courteous responses to my inquiries.

From Dr. J. Berrien Lindsley, secretary of the Tennessee State Board of Health, I have the following :

“This State makes no provisions to reimburse individuals or families, in whose houses contagious diseases have prevailed, for the loss of bedding and other effects which are destroyed by health officers to prevent the spread of contagion. Also, there is no State law upon the subject. On the other hand, it is customary for the county or city authorities to have such effects appraised and paid for from their funds. It is done as a matter of equity. No trouble and no complaint follows.”

Gardner T. Swartz, M.D., secretary of the Rhode Island State Board of Health, writes as follows :

“In reply to your query as to compensation for goods destroyed, or damaged by steaming, or fumigation, I will state that we destroy nothing in scarlet fever and diphtheria without the request of the owner. Not but what the articles should be destroyed in many cases. Such articles as are steamed and injured by staining we make compensation for when it is demanded. In typhus fever, and in small-pox, we destroy and pay full damages.

“Should the local authorities object to the payment, I should approve the account against the State, and believe that I had done an economical act for the State.”

I have from Dr. Lewis Balch, secretary of the New York State Board of Health, the following :

“Replying to your communication of the 16th instant, I have to inform you that the matter of reimbursing individuals for loss of articles destroyed in cases of contagious disease, is one that is entirely in the hands of local boards, who are supposed to make restitution for such articles as they destroy, and charge the same as one of their expenses.”

Our Canadian neighbors are somewhat in advance of us, as will be noted from the reply received from the secretary of the Board of Health in the Province of Quebec, Dr. Elzear Pelletier, which is as follows :

"I believe the following extract from our Health Act answers the question you ask in your letter of the 29th instant :

" 'The municipal council may order the disinfection of effects exposed to infection from contagious diseases, and, if necessary, order their destruction, giving compensation to the owner or owners of such effects at the expense of the municipality.'

"As you see, compensation is provided for in cases where destruction of the effects is ordered, but not when their disinfection only is performed."

And the public health laws of the Province of Ontario, Section 84, provides that any individual who has become infected by a contagious disease shall be taken care of by the health authorities, "by removing such person to a separate house, or by otherwise isolating him, if it can be done without danger to his health, and by providing nurses and other assistance and necessities for him at his own cost and charge, or the cost of his parents or other person or persons liable for his support, if able to pay the same, otherwise at the cost and charge of the municipality."

Section 91 provides that "Any local Board of Health may direct the destruction of any bedding, clothing, or other articles which have been exposed to infection, and may give compensation for the same." (Dr. Peter H. Bryce, secretary of the Board of Health in the Province of Ontario.)

It is worthy of remark that the State of Maryland has long had in operation an effective and comprehensive law relating to compensation for damages inflicted by health officers. Dr. J. A. Stuart, of Baltimore, secretary State Board of Health, makes the following explicit statement :

"Replying to your letter of the 16th, the custom has been for the past twenty years, both in city and State, to have appraised the articles to be destroyed at their present actual value, and the amount paid by warrant upon the city or county treasurer, as the case might be. The appraisement is made by a competent inspector."

Professor C. A. Lindsley, secretary of the State Board of Health of Connecticut, is not enthusiastic over the generosity of local authorities, but still shows that they do make compensation in many cases. He writes as follows :

"Replying to your inquiries about reimbursing for destroyed property in contagious diseases : there is no uniform rule in

Connecticut. Such matters are governed town-wise, and the action depends wholly upon the liberality or generosity or sense of justice of the town board of selectmen, in whom a penurious policy is apt to predominate."

I have the following reply from Dr. R. H. Lewis, secretary of the State Board of Health of North Carolina, in which he explains how the local authorities manage such cases :

"In reply to yours of the 16th instant, I beg to say that our health law reads as follows : 'The expense of the quarantine and of the disinfection shall be borne by the householder in whose family the case occurs, if able, otherwise by the city, town, or county of which he is a resident.'

"As you see, there is no State law, and so far as I know there is no local rule for reimbursement. These matters are arranged entirely by the local authorities. I send you a copy of our law."

Dr. N. D. Baker, secretary of the West Virginia State Board of Health, writes as follows :

"In disinfecting premises which have contained cases of contagious disease, whatever is destroyed in the process is paid for out of the county treasury ; the appropriation of the State Board of Health is not sufficient for the purpose."

Jerome Cochran, M.D., State Health Officer of Alabama, indicates by the following that compensation is made in that State :

"Goods destroyed by our health officials to prevent dissemination of infectious diseases are paid for by the State, county, or city, as the case may be."

Dr. J. T. Reeve, secretary of the State Board of Health of Wisconsin, indicates in his reply that most of the cases that suffer from the destruction of goods receive assistance from the local authorities. His letter is as follows :

"The general statutes of Wisconsin make the providing of nurses, etc., for quarantined families, a charge to the person or persons responsible for the support of such quarantined family. The State Board of Health, however, urges that where it is impossible, or can ill be afforded, for the family to bear this burden, that the town deal very liberally in such cases, bearing all or part of the expense, as the benefit is for the public and not the family. Such advice, we believe, is quite generally followed."

Dr. Samuel W. Abbott, secretary of the State Board of Health of Massachusetts, points out the law bearing upon the subject, which is as follows :

“All reasonable expenses which have been heretofore, or may hereafter be, incurred by the Board of Health of a city or town, in making the provision required by law for a person infected by the small-pox or other disease dangerous to the public health, shall be paid by the person himself, his parents, or master, if able; otherwise by the town in which he has legal settlement; and if he has no settlement, by the Commonwealth, in which case the bills therefor shall be approved by the State Board of Lunacy and Charity.”

Dr. Willis P. Kind, secretary of the State Board of Health of Missouri, writes that no provision is made for reimbursement, except in the case of cholera.

Dr. Irving A. Watson, secretary of the State Board of Health of New Hampshire, writes that,—“The local authorities do in some instances reimburse the parties or furnish new bedding, etc., if the family is in indigent circumstances; but under no other circumstances is this done, as far as I know.”

Dr. A. G. Young, secretary of the Maine State Board of Health, deprecates the fact that the authorities do not make compensation for loss. He writes as follows :

“I think that our local Boards of Health do not very often, if they do at all, acknowledge the obligation of their town to reimburse persons or families for the loss of articles that have been destroyed for the purpose of preventing the spread of contagious diseases.”

Dr. C. O. Probst, secretary of the State Board of Health of Ohio, writes to the effect that the Legislature has from time to time made special appropriations to compensate individuals for losses, and adds the following :

“I send you a copy of our health laws with the section marked authorizing local boards of health to make good such losses to the indigent poor. I think this is quite generally done by our local boards in regard to small-pox, but I know of only one instance where it has been done in another disease, and that was diphtheria.”

Dr. J. F. Kennedy, secretary of the State Board of Health of Iowa, sends a copy of the laws relating to the subject in that State, which I think are the most comprehensive of any State law

upon the subject. I take the liberty of appending the decision of the Supreme Court in that State in two cases, which point out very clearly the law and the justice of reimbursing individuals for losses sustained in this way for the public good.

I am also under obligations to the following gentlemen who have kindly responded to my inquiries :

Dr. H. A. Dykes, secretary of the State Board of Health of Kansas.

Dr. Henry B. Baker, secretary of the State Board of Health of Michigan.

Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky.

Dr. Paulus A. Irving, secretary of the State Board of Health of Virginia.

Dr. L. P. Gibson, secretary of the State Board of Health of Arkansas.

Their communications upon the subject, however, indicate that, like Pennsylvania, their States have no laws governing the compensation of individuals for losses sustained in the destruction of household effects at the instance of health officers.

In conclusion, therefore, I would beg the attention of this Convention, composed, as it is, of members of both local and State Boards, to this important omission in our sanitary laws.

We might well follow the example of such States as Maryland and Iowa, where by statutory enactment the authorities are empowered to make restitution to the individuals who have had to suffer loss as a consequence of the prevalence of contagious diseases in their houses.

I feel sure that the Executive of this Commonwealth, who is ever alive to its interests, will take such a matter into consideration, if this Convention should express its desire that he should do so, and I feel also certain that the Legislature of the State would respond to any reasonable demand for proper legislation in the premises.

The great State of Pennsylvania should not be behind her sister States in the exercise of police powers, in a spirit of equity and even generosity, and especially so when the exercise of this power in this spirit brings with it its own reward,—namely, the increased safety to her citizens.

A Few Needed Reforms in the Health Service.

BY CROSBY GRAY,

Chief Clerk, Department of Public Safety, Pittsburg.

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION :



AM one of that large and constantly growing class of the community who believe that this dearly beloved land of ours is governed too much ; or, in others words, that there are too many separate, distinct, and sovereign bodies or authorities engaged in the business of making and executing laws. The government of this country is certainly an anomaly in the history of nations. First, we have one general or central government, clothed with certain power and authority, but which in many respects is ill-defined. Next, we find forty-four separate and independent State governments, which are permitted to enact and enforce laws not inhibited by, or at variance with, a general organic law termed a constitution. These are followed in turn by almost innumerable city, borough, and other governments, each enjoying the right and privilege to adopt and execute such laws for the guidance and control, the weal or woe, of the people as their own sweet will may dictate, only subject to certain rather vague limitations. As a result of this anomalous system there is a remarkable, unfortunate, and, to my mind, wholly unnecessary lack of that uniformity in law and administration which is so essential to the well-being of the governed. Solomon, in his wisdom, said, "In multitude of counsellors there is safety." Solomon, being the absolute ruler of a great nation, could well, and perhaps safely, afford to say this, but I fancy had he lived in these later days, and in this land, and been a subject instead of a ruler, he would have bowed to the wisdom of that other and homelier proverb, viz., "Too many cooks spoil the broth." This latter is surely a truism when applied to sanitary legislation and administration in this country, and which, I take it, is one of the subjects to be considered by this Convention.

In the consideration of this important question, we are con-

fronted by conditions, not theories. Our general or central government appears to be either clothed with very limited constitutional power and authority for the preservation of the public health, or else it displays a vast amount of indisposition or indifference regarding it. I am inclined to believe that lack of disposition is the true reason, and that it was conceived in sin and brought forth in iniquity; in other words, is the offspring of that fallacious doctrine of "State rights," which has in the past deluged this fair land with the blood of many thousands of human victims, and is yet destined to wreck it.

Of the forty-four States composing this republic, a majority border either on foreign territory or the two oceans, which in these days of rapid transit are no barrier against the inroads of disease and death born and bred in foreign parts. These several governments each have a separate code of laws for the control and guidance of their citizens, and sometimes enacted without regard to the welfare of their neighbors. This unfortunate condition applies to their sanitary as well as general legislation, and in which phase of the subject this Convention is specially interested. The enactments of the several States are, I regret to say, not always of such a character as to imbue the minds of the people with a feeling of confidence in their ability to properly deal with the great sanitary problems which are liable to present themselves almost daily. This is especially true regarding the many and varied quarantine systems in vogue, and to which the special attention of the public has been directed during the past two or three years. I can imagine no proper quarantine law, or any other, in fact, which might not apply to any part or portion of this country. Such laws should be enacted by Congress, and enforced by a central health authority created for that purpose, clothed with ample power, and sustained by liberal appropriations. This would beget that feeling of confidence on the part of the public which is now wanting, insure that uniformity in method and practice which is so all-important, and prevent the maladministration which has been so apparent in the past. Such an authority would be possessed of advantages which neither State nor municipal authorities could possibly have in the way of means, methods, and appliances, and the power and authority of the general government in its support would insure it such weight, influence, and recognition as cannot be obtained under present conditions.

But it is our own local sanitary affairs that I presume we are

called upon to discuss. The duties and responsibilities of health organizations, be they known as boards, bureaus, commissions, officers, or what not, are so varied and diversified, and yet so well understood and appreciated by the members of this Convention, as will doubtless be developed by the presentation of papers and reports, and the discussions to be indulged in by others abler and more competent to do so than myself, that I deem it quite unnecessary for me to attempt to enumerate them. In a word, they are organized and maintained for the special and express purpose of protecting the public health. The line between the protection of the health of the individual and that of the public is so indefinitely drawn and indistinctly marked that it often becomes a serious question as to where the one ends and the other begins. It is a maxim in law that the rights of the individual must be subservient to those of the public. Laws are or should be made for the benefit and protection of the community, even if they do sometimes run counter to the so-called rights of the individual. Sanitary officers must deal with individual cases, as these have a direct bearing and influence upon the community. For instance, in the adoption and enforcement of measures for the prevention of the spread of infectious or contagious diseases, after the conditions which may have a tendency to invite, create, or propagate them have been removed or corrected, then, if the disease should manifest itself, it is the initial case that must be looked after, and radical measures taken to prevent its multiplication. I have little faith in the efficacy of moral suasion in sanitation, especially in these times when liberty has become license. Radical diseases require radical cures.

In the great work of sanitation, the first requisites are good and effective laws bearing on the subject. These laws should be brief, pointed, and so plain in language that "he who runs may read, and a wayfaring man, though a fool, may not err therein." Then they should be fearlessly and intelligently, but not too scientifically, administered. While I have the highest regard and most unbounded respect for the great and grand results following the researches made in the realm of sanitary science during the past quarter of a century, and which will doubtless be still greater in the future, yet I sometimes fear that they are getting above and beyond the range of the conception of many of our fellow-men who are deeply interested in this question. In this "bacillic" age, if I may be permitted to indulge in a coinage, with its germs,

spores, microbes, bacteria, etc., I fear that sanitarians are taxing the comprehension of the general public to almost as great an extent as do those other scientists who delve into the mysteries of the eocene and miocene periods. It is to be hoped that, if possible, preventive medicine may eventually be stripped of some of the mysteries which now seem to necessarily or otherwise enshroud it.

The remarks made in reference to the sanitary laws and administration of the country at large will, I think, apply with equal force to the conditions which exist in our own Commonwealth. The types of sanitary laws and methods in vogue are many and varied. Some communities are almost without such, while others are suffering from too much law. Some of them are so complicated and indefinite in character as to almost require the astuteness of a Philadelphia lawyer (as is often said in the locality from whence I hail) to unravel their mysteries and render an approximately correct interpretation of them.

In probably no other branch of sanitation is the lack of uniformity in good effective laws and administration so apparent as in the care and treatment of infectious diseases, a subject in which every man, woman, and child is personally and intensely interested, and which comes home to each and every one of them. It is this question, probably more than any other, that involves the relations of private to public rights, and requires the adoption of the most stringent rules and most fearless execution. In combating these diseases, there should be no temporizing, and no favoritism shown. No quarter should be given, but the war of extermination should be continued until the last foe expires. That this may be successfully accomplished, proper laws must be enacted, not by or for any particular section of the State, but for and in the interest of the entire people, and the methods used must be uniform and in perfect harmony in every community. This can only be insured by the passage of such laws by the State Legislature. Experience has taught me, and doubtless others as well, that the enactment of such necessary and important laws as these cannot be safely left to the discretion of the local or municipal law-makers. They have been weighed in the balance and found wanting. With this fact in view, a proposed Act of Assembly embodying these features was very carefully prepared and presented to the Legislature at its last session. This subject being such an exceedingly important one, and the proposed act referred to having such a direct bearing upon it, I beg the privilege of referring to it at length, and, if possible, quoting it in full. Its title was :

AN ACT

to provide for the more effectual protection of the public health in the cities and boroughs of this Commonwealth.

SECTION 1.—*Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and is hereby enacted by the authority of the same,* That every physician located or practising in any of the cities or boroughs of this Commonwealth, who shall know that any person whom he or she is called upon to visit, or who comes or is brought to him or her for examination, is suffering from or is afflicted with cholera, small-pox (variola or varioloid), diphtheria, diphtheritic croup, scarlet fever, typhoid fever, typhus fever, yellow fever, or cerebro-spinal fever, shall forthwith make report in writing or upon blanks to be furnished for that purpose to the proper health authorities of the city or borough in which said person may be located, which said report shall, over his or her own signature, state the name of the disease, and the name, age, and sex of the person suffering therefrom, and shall also set forth by street and number, or otherwise sufficiently designate the house or room in which said person may be located.

SECTION 2.—Upon receipt by the health authorities of a report of the existence of a case of cholera, small-pox (variola or varioloid), scarlet fever, typhus fever, yellow fever, diphtheria, or diphtheritic croup, in any of said cities or boroughs, they shall at once place, or cause to be placed, in a conspicuous place or places upon or near the house or premises in which said case may be located a placard or placards, upon which shall be printed, in large letters, the words "cholera here," "small-pox here," "scarlet fever here," "typhus fever here," "yellow fever here," "diphtheria here," or "diphtheritic croup here," as the case may be, and said placard or placards shall remain thereon until such time as the rules and regulations established by the proper health authorities regarding the destruction or disinfection of infected bedding, clothing, *et cætera*, and the disinfection of houses and premises have been fully complied with.

SECTION 3.—The head of the family occupying any house or premises upon or near which such placard or placards aforesaid may be placed, shall be liable for the fine or penalty provided by this act, in any case where such placard or placards are removed, defaced, covered up, taken down, or destroyed, *with his or her*

knowledge or consent, before the time provided by section two of this act.

SECTION 4.—In the care and burial of the bodies of persons who have died of cholera, yellow fever, typhus fever, small-pox, scarlet fever, diphtheria, or diphtheritic croup in any of the cities and boroughs of this Commonwealth, it shall be the duty of the undertaker, or other person or persons having the body in charge, to thoroughly disinfect and place every such body within the coffin or casket in which it is to be buried within six hours after being first called upon to take charge of the same. *Provided*, said call is made between the hours of five ante-meridian and eleven post-meridian, otherwise such body shall be so placed in such coffin or casket within twelve hours, the coffin or casket then to be closed tightly and not again opened unless permission be granted by the health authorities for special cause shown.

SECTION 5.—The body of a person who has died of any of the diseases hereinbefore mentioned shall not remain unburied for a longer period of time than thirty-six hours after death, unless special permission be granted by the health authorities extending the time during which such body may remain unburied for special cause shown. The head of the family, or the person or persons having charge of the funeral of such body, shall be responsible for any violation of the provisions of this section.

SECTION 6.—All services held in connection with the funeral of the body of a person who has died of any of the diseases hereinbefore mentioned must be private, and the attendance thereat shall include only the immediate adult relatives of the deceased and the necessary number of adult pall-bearers. The head of the family or other person or persons having charge of said funeral services shall be responsible for any violation of the provisions of this section.

SECTION 7.—The body of any person who has died of any of the diseases hereinbefore mentioned shall in no instance be taken into any church, chapel, public hall or building for funeral services. The head of the family, or the person or persons having charge of said funeral services, and the sexton, janitor, or other person or persons having charge or control of such church, chapel, public hall or building, shall be responsible for any violation of the provisions of this section.

SECTION 8.—No undertaker, or other person or persons having charge of the funeral or burial of the body of a person

who has died of any of the diseases hereinbefore mentioned, shall in any case furnish or provide for such funeral more than the necessary number of conveyances for said adult relatives and pall-bearers; and all such conveyances, which may have been used or occupied by any person or persons who have been residing in the same family or house with the deceased, shall be fumigated and disinfected at such time and in such manner as may be directed and required by the health authorities.

SECTION 9.—The body of a person who has died of any of the diseases hereinbefore mentioned shall not be conveyed to or from any dwelling or other building or place to any cemetery or other point or place within or through any of said cities or boroughs except in a hearse or other vehicle used for the purpose of conveying corpses only. The undertaker, head of the family, or other person or persons having charge of the funeral or transportation of such body, shall be responsible for any violation of the provisions of this section.

SECTION 10.—Upon the discharge by recovery or death of any person or persons who have suffered from any of the diseases hereinbefore mentioned, the premises where the said disease existed shall be fumigated and disinfected, and the bedding, clothing, and other infected articles destroyed at such time and in such manner as may be authorized and required by the health authorities. The head of the family, or the person or persons having charge of the premises, shall be responsible for any violation of the provisions of this section.

SECTION 11.—No child or other person belonging to or residing with the family of any person, or residing in the same house in which any person may be located who is suffering from cholera, small-pox (variola or varioloid), scarlet fever, typhus fever, yellow fever, diphtheria, or diphtheritic croup, shall be permitted to attend any public, private, parochial, or other school in said cities or boroughs; and all school principals or other persons in charge of said schools are hereby required to exclude any and all such children and persons from said schools, such exclusion to continue for a period of thirty days following the discharge by recovery or death of the person last afflicted in said house or family; and all such children or other persons, as aforesaid, before being permitted to attend or return to school shall furnish to said principal or other person in charge of said schools a certificate signed by the medical attendant of said children or persons,

or by a physician to be designated by the proper health authorities of said city or borough, setting forth that the thirty days mentioned in this section have fully expired.

SECTION 12.—All principals or other persons in charge of schools, as aforesaid, are hereby required to refuse the admission of any child to any of the schools under their charge or supervision except upon a certificate, signed by a physician, setting forth that such child has been successfully vaccinated or has previously had small-pox.

SECTION 13.—The proper health authorities of said cities and boroughs shall furnish to principals, or other persons in charge of said schools, and to physicians, the necessary certificates or blanks for the uses and purposes as set forth and required in Sections 1, 11, and 12 of this Act. The registry of said schools shall exhibit the names and residences of all children or persons admitted or rejected for reasons set forth in this Act, and said registry shall be open at all times to the inspection of the health authorities.

SECTION 14.—It shall be the duty of the health authorities in the several cities and boroughs, as aforesaid, to furnish daily, by mail or otherwise, to all principals or other persons in charge of said schools a printed or written bulletin containing the name, location, and disease of all persons suffering from cholera, small-pox (variola or varioloid), scarlet fever, typhus fever, yellow fever, diphtheria, or diphtheritic croup upon receipt by them of reports of such cases from physicians, as required in Section 1 of this Act.

SECTION 15.—That the health authorities of the several cities and boroughs of this Commonwealth shall and they are hereby authorized and empowered to establish such rules and regulations regarding the isolation of persons who may be suffering from any of the diseases hereinbefore mentioned, and for the destruction, disinfection, and fumigation of bedding, clothing, or other infected articles, and for the disinfection and fumigation of houses and premises, and for the carrying out of the provisions of this Act as they may in good faith declare the public safety and health demand.

SECTION 16.—Any physician, undertaker, principal, head of a family, or other person or persons, as aforesaid, who shall fail, neglect, or refuse to comply with, or who shall violate any of the provisions or requirements of this Act, or of the rules and regu-

lations of the aforesaid health authorities, made under and by virtue of the provisions of this Act, shall for every such offence, upon conviction thereof before any mayor, burgess, alderman, police magistrate, or justice of the peace of the city or borough in which said offence was committed, be liable to a fine or penalty therefor of not less than five nor more than one hundred dollars, which said fines shall be paid into the treasury of such city or borough; and, in default of payment thereof, such person or persons so convicted shall undergo an imprisonment in the jail of the proper county for a period not exceeding sixty days.

SECTION 17.—If in any city or borough there shall be no regularly-constituted health authorities, then, in such case, the power and authority conferred upon and the duties required of said health authorities by this Act shall be vested in and performed by the mayor or chief burgess of such city or borough until such time as properly-constituted health authorities may be established therein.

SECTION 18.—That all Acts or parts of Acts inconsistent with the provisions of this Act be and the same are hereby repealed so far as the same affects this Act.

This proposed law, which was highly endorsed by many practical sanitarians and others to whom it was submitted, commended itself so fully and completely to the minds of the members of the Senate and House of Representatives, that it was passed in both houses by a practically unanimous vote. Unfortunately, the Executive saw fit, in his wisdom, to interpose a veto. It is greatly to be regretted that it did not become a law. Surely the intention of it was a proper and laudable one,—viz., stopping a veritable slaughter of the innocents, whose blood daily cries loudly to heaven for vengeance, and the redress of a great wrong. It was urged and argued as against the bill that while the object sought to be attained was probably a worthy one, yet the subject could best be referred to the discretion of the local boards of health. In reply to this, I beg leave to say that boards of health are executive and not legislative bodies, enforcing laws as they find them, but not authorized to enact them.

It was also urged that this subject should be relegated to the tender mercies of the various city and borough legislatures. In reply I would say that this has been tried, and proven to be a failure, in at least one of our cities. A few years ago an ordinance

embodying most of the features of this bill was presented in the councils of that city and after several weeks of earnest discussion it failed to pass. Both politics and religion were successfully invoked to assist in its defeat. In that city alone hundreds of children annually fall victims to the ravages of the diseases referred to, which calamity might be averted to a great extent by the passage of such a salutary law.

Again, it was alleged that conditions varied in different localities, and that therefore it was unfair and unjust to impose upon the several communities a uniform system of administration such as was outlined in the bill. The fact that it sought to provide uniform methods of administration throughout the State was certainly, in the light of experience in sanitation, an exceedingly strong point in its favor.

What are the conditions that vary to such an extent in the several communities as to render this enactment unfair or unjust? I confess that I know of none that exist in one locality and not in another. The diseases referred to are not confined to any particular locality, but are universal. Knowledge of the exact location of each and every case by the health authorities, and the imparting of that knowledge to the public, so that it may be forewarned, is just as necessary in one part of the State as in any other. Is the holding of public funerals in cases of death from any of these diseases less dangerous in one community than in another? Are the schools any less liable to prove to be hot-beds of disease; and are the little ones entitled to less protection in one district than in another? Are life and health more precious to their possessors in one portion of the State than in another? Are any of the protective measures sought to be provided and enforced by this Act unnecessary in any city or borough in this Commonwealth? I think not. The conditions are exactly alike in all. For confirmation of the truth of these opinions, I confidently appeal to the experience of every practical sanitarian within the sound of my voice.

The human form divine is, or should be, the object of sanitary care, watchfulness, and control, from his cradle to his grave. Among the many important duties required of sanitary authorities in this connection is that which goes to assist in making up his earthly history,—viz., a record of his birth, his marriage, and his death. This is not only important and necessary from a legal point of view, as a public record, but also as having a decided

bearing upon the health and lives of his fellow-beings in the community. In order that this branch of the health service may be made of real value, it is necessary that the records should be both complete and accurate in every detail. How many of them are so is a query which I leave to be answered by those who are competent to judge in their respective localities. That many inaccuracies are liable to and do creep in is very evident. This I deem to be due in a great measure to a faulty system of collection and registration, which permits and often encourages carelessness, criminal in some cases, lack of appreciation of the importance and necessity of having complete and truthful returns made, and, in some others, actual falsification. That these defects in system and methods may be remedied, I am of the opinion that each return of a birth, marriage, or death should be accompanied by an affidavit of the person making such report as to its accuracy. These are valuable public records, quite as much so as any other, and should be made subject to the same requirements of law as to accuracy, as other public records are. What think you of a physician who, to gratify a spirit of revenge for the non-payment of a fee perhaps, or for some other reason, should, in making return of a birth, give the occupation of the father as that of a "loafer" in one instance, and in another as a "bum," as was done recently in a certain city. While the information thus given may have been correct in point of fact, was it prudent, was it justifiable, was it professional, or even gentlemanly, to place it upon record? Fancy the feelings of that wife and mother when she learns that, as a matter of record, she was the wife of a loafer or bum; and also imagine the feelings of that innocent child when it discovers, through the medium of a public record, that its father was a loafer or bum. And what think you of that other physician who certified the death of a child as having been caused by diphtheria, and yet, within a few hours afterwards, gave another certificate setting forth that the death resulted from simple croup, so as to enable the funeral director to obtain a transit permit for the shipment of the infectious remains out of the city? In these cases had affidavits been required, the results would doubtless have been different.

As to returns of death, I beg to say, although I may be treading upon dangerous ground, that the same defects exist, though probably in a somewhat different line. This is especially noticeable in classifying the causes of death, as given. This par-

ticular record is often greatly marred, if not rendered valueless in some respects, by the tendency to assign some prominent symptom as the cause of the death, as, for example, "dropsy," "exhaustion," etc. But the latest fad in this line has become the most popular,—viz., "heart failure." This is doubtless used by many thoughtlessly, overlooking the fact that from the demise of old father Adam, down through all the ages that have passed, and those yet to come, to the death of the celebrated last man, this has figured, and will continue to do so, as a prominent and universally fatal symptom in every cause of death, be it the result of either disease or violence. In this connection I cannot refrain from referring to the opinion expressed, jocularly, of course, by one of the registrars of vital statistics *par excellence*,—viz., that "unknown" was the most sensible, and, perhaps, the most correct cause of death, that he had observed.

One of the greatest drawbacks found in the registration of vital statistics is the poor writing and bad spelling indulged in by many of those who are required to furnish the necessary information. To the registrar and his clerks these are very great annoyances, the bane of their existence, the nightmare of their slumbers. I sometimes almost fear that the arts of chirography and orthography have been lost, strayed or stolen from the curriculum of some of our schools, colleges, and seminaries. Upon the blanks furnished for making the returns there should be printed in bold type and sanguinary colored ink this request, "Please write legibly with pen and ink, and spell correctly."

I feel that I cannot close these remarks without at least a brief reference to our very efficient State Board of Health and its work. With some of its members and officers I have long enjoyed the honor and pleasure of a personal acquaintance, while with others it has been of but brief duration. From personal knowledge and observation I do not hesitate to say that they are the right men in the right places, active, energetic, well equipped, and thoroughly devoted to the great work which has been committed to them. In the past the work performed by this board has been well done, and upon the lines of well-considered and digested reform in the health service. Its indefatigable work in behalf of the organization of health boards in the several boroughs of the Commonwealth has at last borne rich fruit. Its adoption of rules and regulations, embodying some of the features of the proposed Act before referred to, has proven to be of excellent service,

although their enforcement by due process of law may be problematical. The inspections and investigations, carried on by it through its members, committees, and officers, have resulted in great good to the communities directly interested as well as the public at large. But great as is the work which it has performed, much more and better could and would have been done had it been properly sustained. Had it been clothed with proper authority, supplemented by the funds necessary for its proper execution, a much better record could have been made, and the people of every section of the State been correspondingly benefited. Its powers should be broadened and extended. Of the existing laws relating to this branch of the public service but one single isolated section gives it power to take decisive action, and then only under certain peculiar conditions. Then again, the paltry and niggardly appropriations set apart for its annual expenses are not commensurate with the labor to be performed or the time expended in its performance, neither are they creditable to the good sense or public spirit which is shown in the management of many other branches of the government. True it is that, when a visitation of epidemic disease was recently threatened, the sum of \$50,000 was set apart for its use, under certain conditions, and our people and legislators rather prided themselves upon this unusual and remarkable streak of liberality. Yet had this amount been appropriated *annually* for sanitary purposes, as should have been done, there would not have been manifested that dread and anxiety that was so marked and wide-spread throughout the State during the past two or three years.

In conclusion, I beg to say that it has not been my intention to indulge in any harsh or unjust criticism, but simply to direct attention to what I deem to be a *few* of the many defects existing in our methods of sanitary administration. In these days of civil service, tariff, municipal, political, social, religious and other reforms, many of them shams, but each written with a colossal R, let us hope that a little *genuine* reform, even though it be written with a plain, common-sense, every-day r, may soon be inaugurated in the health service.

Powers and Possibilities of Local Boards of Health.

BY MAJOR M. VEALE,
Health Officer of Philadelphia.



HERE is no subject which would receive greater consideration from statesmen than the public health, and no subject in which every citizen is more interested. The pursuit of happiness would be rendered abortive if public health should be entirely neglected, or considered of secondary importance. In the individual, it is a moral wrong to disregard the laws of health or to act or think in such a manner as to impair the vital forces, and yet there has been no time since the creation of man when it has not been necessary to compel mankind, by law, to observe the rules of health.

In the very nature of things, it is an inherent right in every community to protect itself against a foreign or internal enemy, and preserve itself against dissolution,—this right must be exercised through some form of law. When communities are formed the individual surrenders some of his natural rights in consideration of the rights and privileges which he gains by being a member of the community,—among other things, he tacitly promises and pledges that he will not conduct himself or use that which belongs to him so as to affect, either directly or indirectly, the health or lives of others, or do that which may have a tendency to become prejudicial to the public health or the health of the community of which he has become a party. It therefore follows, as a matter of course, that the power to preserve public health is supreme, and the only question or questions we need consider is, where has this power been vested in accordance with law, and how is it to be exercised in the State of Pennsylvania.

In the State of Pennsylvania, by several statutes, there has been created a State Board of Health, a Board of Health for the City of Philadelphia, and Boards of Health for cities of third class. These several boards of health have power to declare the existence of a nuisance having a tendency to be prejudicial to public health, and having so declared, the courts will not inquire into the matter whether the said conditions so declared to be a nuisance or not, and the said boards, after due notice to the owner, agent, or tenant

to abate said nuisance, and upon failure of said owner, agent, or tenant to abate the nuisance, then the said boards, through their executive officers, shall have power to abate the nuisance, remove the cause, and charge the properties with the expense. Creating and maintaining a nuisance is a misdemeanor and indictable. Every board of health in the State of Pennsylvania can proceed against any person or persons, by indictment, for creating or maintaining a nuisance prejudicial to public health. Boards of health have power to declare what diseases are contagious, infectious, or communicable, and to have the same placed upon the list or registered. Physicians, upon failure to report such cases to the health or executive officer, are liable to a fine.

One of the most sacred rights of an American citizen is to possess his house or houses free from intrusion, yet, a board of health may, and in most instances does, have power to enter and search all houses, stores, cellars, and other inclosures, where they may have a just cause to suspect any nuisance to exist. The Board of Health of the City of Philadelphia shall have full power and authority to remove the cause of all nuisances that exist or may hereafter exist. This power, coupled with the statutory declaration that in a proceeding on a *scire facias* to recover the expense for the removal of a nuisance, the fact of the nuisance shall not be inquired into, seems to give the Board of Health almost unlimited power and authority. The right of search, the right to remove the cause of nuisance, and the right to recover for the expense of removal, and the owner of the property upon which the nuisance or cause of nuisance shall exist being barred from giving evidence to show that no nuisance in law existed is a very plenary and absolute power, and would seem to violate the rights of property, and yet such power lodged in a board of health is necessary in order to preserve life and public health.

The city councils of all cities of the third class shall have power to create boards of health, and such boards have power to abate and remove all and every nuisance in such city, and assess the costs and expenses of the same upon the premises or property, which, when duly certified, become a lien as in the case of other municipal claims. They shall have power to regulate the construction and arrangement of water-closets and privy-vaults, also the emptying and cleaning such vaults, and to register marriages, births, and deaths. They also have power to send all persons discovered with infectious or contagious diseases to pest-house or

hospital, and the right to make and pass all orders and regulations as they shall from time to time deem necessary and proper for the public health and for the prevention of diseases. These said orders and regulations, when adopted by the councils, shall have all the force and effect of ordinances of such city. Whoever shall violate any provision of this Act, or any order of the said board of health, or shall obstruct or interfere with any person in the execution of any order of said board, or shall wilfully or illegally omit to obey such orders, on conviction, shall be subject to a fine not to exceed the largest fine for the violation of any ordinance of the city. When an ordinance or regulation is expressly authorized by legislative Act, the local legislation has in all respects the character and effect of a statute within the local jurisdiction.

There is ample power vested in every local Board of Health, and a most imperative duty to guard against the introduction and spread of contagious, infectious, and communicable diseases. This power can be exercised in removing patients infected with contagious diseases to hospitals, pest-houses, or places of perfect isolation, or where such conditions cannot be obtained, then to quarantine such patients, and all others who have been exposed to the disease. This extends to prohibit and prevent all intercourse and communication with, or use of, infected premises, places, and things. Clothing, bedding, furniture, and all other infected articles may, without consent of owners, where it is necessary to prevent the spread of disease, be disinfected or destroyed. When the public health and human life are concerned, the law requires the highest degree of care, and will not brook weak and hesitating measures, nor stop to experiment as to what is the minimum of care that can be exercised. The law makes no limitation upon the power of boards of health to abate a nuisance prejudicial to public health or having a tendency to be prejudicial to public health. The only limitations are as to the manner of exercising this power. The limitations do not extend to the judicial, but to the ministerial functions of the boards of health. The power is limited to the abatement of the nuisance and removal of the cause, but will not extend to the improvement of property either as to utility or æsthetics.

Just in proportion to the great power exercised by boards of health over persons and property, touching personal liberty and rights of property,—two subjects about which a free people are the most sensitive,—so should good judgment and great care be

exercised, guided by honorable motives, by the executive and ministerial officers of boards of health. While timidity should never characterize the acts of an executive health officer, neither, on the other hand, should any aggressive spirit amounting to cruelty.

The power of boards of health extends to the exclusion of persons and things from entering the territorial jurisdiction of said board, or from leaving such territory when it becomes necessary to protect public health.

The power of health authorities commences over the person at birth, follows him through life, determines his manner of burial, and the time and conditions under which he can be disinterred. It governs the physician and undertaker, and makes rules and regulations when and how the dead shall be transported.

The possibilities of boards of health are almost unlimited. The air, when contaminated, carries disease and death. To prevent this contamination, or disinfect and render innoxious, is a possibility which health authorities can attain. Science has not yet discovered the means of rendering the atmosphere of a State or city perfectly harmless when charged with deadly infection, or quarantining against this deadly atmosphere; but it is possible to take limited zones and make the atmosphere perfectly healthful, and thus prevent the spread of disease. Science has discovered agencies which can be disseminated to a limited extent through the air and act as germicides. These are known agencies and existing facts. The possibilities, we believe, are still greater, and boards of health should be satisfied with nothing less than ultimate possibilities in arresting disease and saving human life. I may be permitted to suggest some practical modes of keeping the atmosphere of large cities free of disease-germ life. The dust of the streets, the filth of the gutters, and the odors from the sewers are prolific sources of contaminating the air. I would suggest that all contractors for sweeping the streets be compelled, before each sweeping, to have the streets well sprinkled with some cheap but effective liquid germicide, and each day to place down every inlet to a sewer a sufficient quantity of same liquid. The sputa of persons affected with tuberculosis, containing the germ of the disease, become mixed with the dust. The germs of diphtheria, and all other contagious and infectious diseases carried into the streets on clothing and otherwise, become a part of the sweepings, and, when dry, are easily carried into the air and

taken into the system, spreading the disease. The germs of typhoid and other communicable diseases, carried from cesspools, water-closets, and other places into sewers, and from there through the inlet into the air, and thus do the work of increasing the death-rate. To reduce the death-rate by proper means is a possibility of health boards. The prevention of the pollution of water, whether from streams, wells, pumps, or any other source of water-supply for drinking, culinary, medicinal, or domestic purposes, is a possibility through the lawful agency of boards of health. A stream of water, used by a city or town for its water-supply, can easily become a medium of causing an epidemic of cholera, diphtheria, scarlet fever, typhoid fever, and numerous other contagious diseases. This could be entirely prevented if the health authorities would develop and exercise their possibilities, and use these possibilities to prevent epidemic and spread of disease rather than wait for the epidemic and the spread of contagious diseases, and then seek to control it and use means to cure the infected. It is possible for boards of health to prevent the discharge of human excreta, the filth and waste of factories, the offal and waste of slaughter-houses and pig-pens into streams of water which are used for domestic purposes, directly or by the indirect means through the supply of contaminated milk. The pollution of a stream of water is a common-law offence, punishable by indictment, and boards of health would have the full support of the law in preventing the pollution of any stream of water. It is not necessary to do more than state the fact that all kinds of germs of contagious diseases multiply with great rapidity in water, and are easily taken into the human system.

In cities and towns where no sewers exist, a great possible source of spreading infectious and communicable diseases is found in the privy-wells. Near the house is the water or pump-well, and not far off, in sandy or light loam soil, the privy-well. The excreta from patients suffering with typhoid fever or any other contagious disease are emptied into the privy-well, without, save in a very few cases, having been disinfected. The liquid containing the disease-germ in most cases finds its way easily into the water-well, and the result, spread of the disease. It is possible for boards of health to prevent this mode of distributing disease.

A great source of the spread of disease is through milk, meat, and other food-supplies, indeed, but especially through

milk and meat; and the remedy is within the possibilities of health boards. Boards of health being authorized by law, the authorization carries with it the means of executing its rules and regulations.

Inspection is a necessary condition or element connected with the powers of a board of health. This inspection of milk should be made as it comes from the cow. The elements of disease are in much of the milk before it comes from the cow, independently of the pollution it receives from milking and other manipulation. That of meat should be made at the time it is killed, together with an inspection of the slaughter-house, its surroundings, and the persons engaged in the slaughter.

The Jews, wiser about such matters than we are, gave special attention to the smallest details of this matter.

The strict isolation of persons infected with contagious or communicable disease, by sending them to hospitals or maintaining strict quarantine of their houses, will either stamp out the infection or greatly reduce the danger of the disease spreading. As an example, where I have been somewhat of an active agent, I will cite the experience of Philadelphia during the year 1893, when diphtheria was prevalent.

By sending patients to the Municipal Hospital, or quarantining the houses in which they were ill, the number of cases of diphtheria in 1892, 5051, was reduced in 1893 to 2848, and the number of deaths from diphtheria in 1892, 1435, including membranous croup, was reduced in 1893 to 1159. Also, the number of cases of scarlet fever in 1892, 6245, was reduced in 1893 to 2848, and the number of deaths from scarlet fever in 1892, 485, was reduced in 1893 to 267.

From February, 1893, to January, 1894, there were 42 cases of small-pox and varioloid in the city of Philadelphia, and of these 42 cases there were 24 centres of distribution or infection. Every case was sent either to the Municipal Hospital or the house strictly quarantined, and to-day, in the city of Philadelphia, with a population estimated for the year 1893 at 1,115,562, not a single case of small-pox or varioloid exists. Strict quarantine, coupled with vaccination, stamped it out.

The preparation of dead bodies for burial, where death has been caused by contagious or infectious diseases, is of great importance, and boards of health should exercise the greatest care and insist that the body, immediately after death, before being

placed in the coffin, shall be enveloped (and remain thus enveloped) in a sheet saturated with a solution of chloride of lime, or a solution of pure carbolic acid, or a $\frac{1}{10}$ per cent. solution of corrosive sublimate. Burial in all cases where death has resulted from any contagious or infectious disease, shall take place within thirty-six hours after death, and all such funerals should be strictly private. Under no circumstances should any person be permitted to view the dead body where death has been caused by infectious or contagious disease. These possibilities can be obtained in every part of the State of Pennsylvania, under the law which enacts: In cities, boroughs, districts, and places having no local boards of health, or in case the sanitary laws or regulations in places where boards of health or health officers exist, should be inoperative, the State Board of Health shall have power and authority to order nuisances, or the cause of any special disease or mortality to be abated and removed, and to enforce quarantine regulations as said board shall direct.

In order that the full power vested in the State Board of Health shall be effectually enforced, the clause in the law limiting the appropriation to \$10,000 should be repealed, and the Legislature at each session should make an adequate appropriation to carry out the full purpose of the law.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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The State Sanitary Convention.

THE editorial note that appeared in our last issue, which was written by Dr. Benjamin Lee, the secretary of the State Board of Health, very justly spoke of the Sanitary Convention that was held in Harrisburg, in the closing days of January, as one of vast importance and significance. The prime requisite for satisfactory results is efficient administration in any department, and it was with this idea in view that the State Board of Health has been earnestly and persistently striving for years to secure a local sanitary administration throughout the State of Pennsylvania.

Now, such an administration has been started, and it will be but a short time until a local Board of Health will exist in every borough of the State. This convention was a conference between the State Board and these local boards. Papers of extreme importance and discussions of unusual interest were presented to this Convention. So vast was the amount of valuable material that we find it impossible to make space for it all in one issue, so that, while we devote the whole of this issue to these proceedings, it will be necessary to defer the balance to our April number.



This department is designed for the description of improved Sanitary Appliances and Medicinal Preparations introduced by patrons of The Annals. The matter is not paid for, nor can it be classed as advertising. But as the information is necessarily obtained from those who offer the appliances for sale, it is proper to say that the manufacturers, rather than ourselves, are responsible for the statements made.

Asparaline Compound.

The preparation known as "Asparaline Compound" is a combination of a number of remedies of recognized therapeutic power. There is asparagus, which is a valuable diuretic and sedative; parsley, which is stimulating, antiperiodic, antiscorbutic and also diuretic; gum-guaiacum, which is tonic, alterative, and a great favorite of the late Dr. Dewees in dysmenorrhœa; black-haw bark, which is antispasmodic and antiabortive; henbane, which is one of our safest and most reliable anodyne and calmative remedies, and such aromatics, which are known to possess warm, stimulating, stomachic effects, and of special value in relieving pains or spasms of any kind.

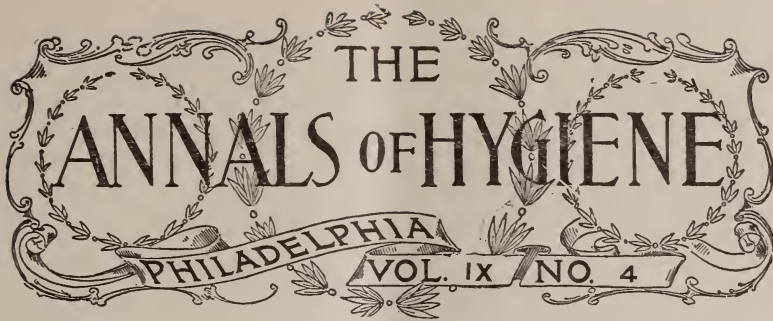
From such a combination it is evident we have here a remedy of especial value in cases of dysmenorrhœa, amenorrhœa, leucorrhœa, and menorrhagia.

The clinical results show that this theoretical combination is all that could be desired in practice.

So far as we know this is the only compound on the market which can be said to be a safe and reliable remedy for the relief and cure of these most obstinate affections. Of course, when organic lesions exist it would be useless to regard such a remedy in any other light than that of giving relief to the suffering. But when such lesions do not exist, we can see no reason why this compound will not prove of the highest value in both the relief and cure of uterine affection, together with all other kindred diseases where the uterine organs are involved.

Vitality of the Nerve-Structure.

After an attack of the grippe the patient finds himself in a state of extreme weakness and prostration, from which condition he is tediously brought to his former good health. Remedies which stimulate his exhausted nerves too vigorously do so at the expense of his general condition. Then comes the relapse *Syr. Hypophos. Comp.* McArthur conveys to the tissues the revivifying and vitalizing agent phosphorus in its most oxidizable and assimilable form. Thus the true vitality of the nerve-structure is restored by renewing the nutrition of the tissues themselves.



COMMUNICATIONS.

Sins of Omission and Commission in Our Common Schools.

BY S. T. DAVIS, M.D.,
Lancaster,

President of the State Board of Health of Pennsylvania.



THE great Columbian Exposition just closed, wherein almost all civilized nations of the world met and vied with each other in exhibitions of science and art, proved conclusively to my mind that we live no longer in a new world,—the North American Wilderness,—but in an age of *progress* on *American* soil, where *education* is making great strides, and scientific truths are taking the place of “folk-lore,” where cause and effect unite with almost as much precision as the movements of the heavenly bodies at the proper angle, and results are foregone conclusions. Where the tiller of the soil has no longer any use for a wooden mould-board for his plough in preparing the ground for the golden grain or the sickle to harvest it or the flail to thresh it. Polished steel takes the place of the first, and the farmer rides on a comfortable seat instead of walking along in the furrow. Instead of grasping a span of grain with the left hand and cutting it off with the sickle in his right, four horses attached to the harvester, the driver on his seat, and in the wake of the wonderful machine may be found bound sheaves or bags filled with cleaned grain ready for the market.

Steam and the harnessed electric spark have supplanted the old ways of transportation, and the Conestoga wagon and cars drawn by horse-power on the old Pennsylvania road between Philadelphia and Pittsburg are things of the past. No less marked has been the improvement in the impartation of knowledge in our schools and colleges; except in the important matter of preserving the health of pupils and preventing the spread of contagious diseases, and *especially* in our common schools. And it is to this special subject that I desire to call the attention of this Convention, and as physiology and hygiene are now taught in our schools throughout the State of Pennsylvania, I take it that there is a leaven at work in the minds of law-makers, superintendents, directors, and teachers, which, though like the "mills of the gods grind slowly," will in time do more towards insuring sound bodies and good morals for school children than any other influence which can be exerted through our common school system.

The subject of school sanitation in its application to the rural districts where no board of health exists has been very much neglected in our State, as well as in many others. Now that under a recent law enacted at the last session of the Legislature, establishing local boards of health, it is to be hoped that *their* influence will be felt in every school district throughout the State, and that much-needed reform in that direction will speedily take place. The State of Pennsylvania has moved very slowly towards the protection of the public health. Though one of the oldest and richest of the original thirteen members of the Confederation, it was not until 1885 that the Legislature recognized the importance of a State board of health. Since its organization and the general distribution of circulars on matters pertaining to the protection of health, spread of contagious diseases, purity of water-supplies, and disposal of sewage, a general interest is felt more and more apparent all over the State. And one of the best evidences I have had that our work is being felt was that only a few weeks ago I was waited upon by a committee representing 350 school directors, requesting me to address their convention on "salient points in sanitation with which school directors should be familiar." In the consideration of these matters pertaining to the preservation of the health of school children, it will be necessary to take up the subjects of pure and impure or vitiated air, location of school-houses, heating and ventilation, water supply and sewerage, as well as the precautions against contagious and

infectious diseases. Air is that invisible, inodorous, insipid, transparent, compressible, ponderable, and elastic fluid which, under the form of the atmosphere, surrounds the earth to the height of fifteen or sixteen leagues. It is composed principally of two well-known gases, oxygen and nitrogen, in the proportion of twenty parts of oxygen to eighty of nitrogen, together with a small quantity of carbonic acid. Pure air is the all-important necessity of life. Food or water we can do without for a considerable length of time, but when the animal organism ceases to breathe, it begins to die. If the food or water are impure and unhealthy, they may, though at great risk, sustain life until their condition can be improved or their places substituted for better. But how different with impure air. It must be inhaled, and at every inhalation an adult takes into the lungs about twenty cubic inches of air, which, like the fumes of ether or chloroform, is absorbed by the blood, and through it exerts its poisonous effects on the system.

Impure air is an intangible and dangerous foe that gets everywhere, and lurks around every human habitation, and all the more dangerous, inasmuch as it may have neither taste nor smell, and be all the more virulent, and its presence may not be suspected. The effects of breathing vitiated air are soon manifested by the following well-known symptoms: Cold extremities, flushed face and lips, throbbing temples, drowsiness in some cases, and extreme nervousness in others, with nausea, and even fainting, all of which are usually laid to an over-heated room; but if by good ventilation the heat is kept at the floor, and a continuous supply of fresh air is admitted, these symptoms disappear. The increase of carbonic acid from four to six parts in ten thousand parts of air renders it unfit for a breathing medium,—not that the amount of carbonic acid is so poisonous in itself, but from the fact that such quantities in an atmosphere contaminated by respiration indicates the presence of poisonous effete matter, exhaled with the breath and emanating from the skin, and that the vitalizing oxygen is so diluted that the blood cannot take its life-giving property from the lungs. It was long supposed that carbonic acid was alone the principal poisonous element of the human breath. But at a recent meeting of the Academy of Sciences of Paris, the celebrated scientist, Professor Brown Séquard, reported some experiments he had recently conducted with a view to ascertain whether carbonic acid was the only poisonous agent contained in the exha-

lations from the lungs. By condensing the watery vapor coming from the lungs he obtained a poisonous liquid capable of producing almost immediate death. This poison he found to be an organic alkaloid, and not a microbe, and by injecting it under the skin of a rabbit immediate death ensued. To illustrate more fully what amount of ventilation is required in a given case during sleep. Take, for example, a room 12 x 15 feet, with a 9-foot ceiling, which would contain 1620 cubic feet of air-space. Presuming the air to be normally pure at 10 o'clock, the hour of retiring. During the first hour the occupant breathes about 1200 times, and at each respiration takes into the lungs 20 cubic inches of air, from which the blood absorbs one cubic inch of oxygen. So that at 11 o'clock 1200 inches of oxygen have been used up; and, as the sleeper exhales at every respiration eight-tenths of a cubic inch of carbonic acid, this dilutes the oxygen in the air in the room with 960 cubic inches of carbonic acid, which added to the 1120 cubic inches already there, make 2080 cubic inches, or 12 cubic feet, of carbonic acid in the 1620 cubic feet of air, equal to nearly three times the amount in a normally pure atmosphere. Proving beyond the question of a doubt that at the end of the first hour the air is unfit to sleep in, and if two persons occupy the same room the air is doubly bad, and goes on from bad to worse, and by morning it is simply a fetid poison. Who of us in perfect health have not slept from the hour of retiring until daylight, and at rising felt more fatigued than when we went to bed? Dull, listless, frontal headache, thirsty, and, perhaps, nauseous, and who of us, having experienced these symptoms, have not also observed that after a short time breathing God's pure air, these feelings of depression entirely disappeared? What has been going on in this human form Divine, truly, fearfully, and wonderfully made? The blood poisoned by air vitiated by the exhalations from our own bodies has been again re-oxygenated, and the "filthy bird that fouled its own nest" is permitted to resume its accustomed vigor, only to go and sin against nature's laws again and again.

The apparent effects of breathing a foul atmosphere are, perhaps, more noticeable in badly-ventilated school-rooms than anywhere else. And to more fully illustrate let us visit one of our district schools, and remain during the morning session. The faces of the pupils as they arrive are tinted with a bright, healthy glow, the results of walking to school in a pure atmosphere. The

weather is cold. The doors and windows are tightly closed, and the regulation-stove is of necessity red-hot, and the session begins, say, with forty pupils. We have been an interested spectator of school routine for an hour. At the close of the hour we begin to feel exhausted, temples throbbing, head hot, and feet cold. Our face is flushed, and we begin to suffer from what we regard as the excessive heat, and we crave fresh air. Relief comes at last by the opening of a door or lowering of a window, as that is the only means of admitting fresh air, and then at the expense of some of the children taking cold. Our own feelings prompt us to more carefully observe the pupils; some appear sleepy and dull, others are restless and noisy, while all have that peculiar flush in cheeks and lips, with a back-ground of pallor, which tells more plainly than words that the air is vitiated, that the oxygen is used up, and that carbonic acid has taken its place far beyond the limits of pure air. During the first hour the 40 pupils exhaled 24 cubic feet of carbonic acid into the room, which, we will suppose, contains 10,000 cubic feet of air. Add the 4 cubic feet of this gas already there, and we have 28 cubic feet of carbonic acid in the 10,000 feet of atmosphere, or nearly five times more than the limits named.

This imaginary visit to a school-room has not been over-drawn, and I here and now venture to say, without fear of successful contradiction, that if every school-room in the State of Pennsylvania were inspected from a scientific, sanitary stand-point with regard to heat and ventilation, it would be found that two-thirds of them would not be in any better condition than the one described. Some of the baneful effects of breathing vitiated air in crowded school-rooms have been mentioned, but not all. Can a child's congested head and brain, suffused with black venous blood, receive and retain knowledge without an overstraining opposition from the nervous system? The question can elicit but one answer from any intelligent physician or sanitarian, and that is, No. If that is a fact, and beyond a doubt, and *it is*, what would be the effect on the eyesight? This question I will answer myself by calling attention to the fact that just at the present time sanitarians are devoting special attention to the subject of light in school rooms, and its deleterious effect on the eyes of school-children. Now, I have been investigating this subject somewhat, and, while I am free to admit that the lighting of the school-room should be very carefully looked after, I have about

arrived at the conclusion, as a result of my investigations, that inasmuch as the majority of cases of defective vision in school-children is owing to defective accommodation, the true cause is more likely to be found the result of breathing vitiated air five days out of the week for six or more months in the year, while confined in ill-ventilated school-rooms.

The time allotted for a talk of this kind on a subject of so much importance is entirely too short, but the plain, simple statement of scientific facts should be and *is* sufficient to cause the most casual observer interested in the preservation of the health and comfort and future usefulness of our school-children to pause and reflect. And as there is now an effort being made by educators in the direction of compulsory education and the addition of agriculture to the common-school curriculum, I would suggest that the air-brakes be applied in time. Compulsory education would add very nearly one-fourth more pupils to our already ill-ventilated schools, and, as a sanitarian, I am convinced that the process of cramming an education into children of tender age is carried far beyond the limit of safety or practical usefulness.

Hence, if I were asked to add another branch to the studies to be pursued in our common schools, I would supply a long-felt want by recommending physical culture, both in theory and practice, and it would not be barbarous foot-ball, but scientific calisthenics, under the direction of competent teachers, who were perfectly familiar with the subject and taught it from a physiological stand-point.

And now having called your attention to the sins of omission and commission in heating and ventilating our common schools, it remains for me to prescribe a remedy,—a means of salvation,—a means of escaping the ravages of a silent, slothful public enemy permitted by public authority, and daily feasting upon the vitals of the school-children of the State of Pennsylvania.

In order that I might satisfy myself as to the best methods of heating and ventilating both public and private edifices, and thereby be better enabled to offer some practical suggestions, I have for several months been engaged in investigating nearly all of the principal devices in the market. As would be expected, all claimed to have the best. Many were good, many poor, and a large percentage worthless, and constructed without any regard to natural laws governing air-currents, hot or cold. In order that I may be fully understood, before taking up a description of the

selected method of heating and ventilating, I have had some drawings made, applicable to a country school-house with a seating capacity for fifty pupils. I also want to here state that I have no interest, directly or indirectly, in any method, except for what I consider the best from a sanitary stand-point and the cost of construction, and this leads me to remark that it affords me pleasure to call attention to the Smead-Wills system. They, in my opinion, have planted their flag nearer the pole, as viewed by a sanitarian, than any of their competitors,—and why is it? Simply because they have not only gone into the philosophy and chemistry of the atmosphere, but the physiological effects of vitiated air on the animal economy; and, having based their system on scientific facts, the results could not fail to be a grand success and a boon to mankind. For large three- and four- or more-storied buildings I believe their system to be entirely satisfactory as to ventilating, and their dry-closet system. But for small single-room houses, such as we are now considering, the dry-closet is not satisfactory or necessary, and their whole plant is too expensive, when the desired results can be obtained at much less cost and complication. The air-space necessary for fifty pupils should be not less than 15,000 cubic feet, or 300 cubic feet for each, which is none too much; and according to the standard which I have endeavored to establish, each pupil would require about in round numbers 2000 cubic feet of fresh warmed air each hour, and, the contents of the room being 15,000 feet, the air would have to be changed about six or seven times an hour, or for the whole fifty pupils 100,000 feet of fresh air would have to be admitted into the room and the same quantity discharged every hour. Before proceeding to a description of the plans designed to accomplish this end, it might be well to refer briefly to the selection of a site. My school-house would not be a "schule haus an der krick," or built like a fort, as almost two-thirds in Pennsylvania are on the highest, bleakest hill in the district, exposed to the coldest blasts of winter and the hottest rays of sun in the summer. It would be like the old hunter's trap, which he said he set "not here, not there, but just right there." The most pleasant, convenient southern slope, easy of access, adjacent to good, pure water, and of sufficient grade to insure perfect drainage. The building to accommodate fifty pupils should be 30 to 45 feet, with a 13-foot ceiling. The cellar should be 7 feet in the clear, and 4 feet of this above ground, with sufficient, well-

grated windows to furnish both light and ventilation. At the end opposite the entrance the flue 18 x 30 inches, and inside of this a terra-cotta smoke-flue, 10 inches in diameter, leaving a 6-inch air-space between the smoothly-plastered sides of the flue and the outside of the terra-cotta smoke-flue.

This brings us to the consideration of the different methods of heating building, viz.,—

(1) Direct and indirect hot air, or by stoves in the room to be heated, or through registers in the floor or elsewhere from a hot-air furnace in the cellar.

(2) By steam, and

(3) By hot water.

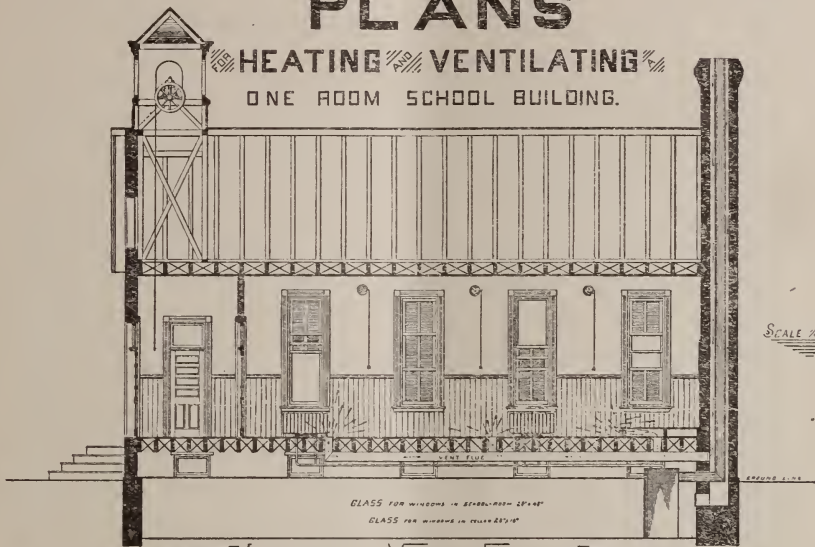
As to the first, or heating with a stove in the room, and expecting a uniform temperature, I may say it is scarcely necessary to state that it is an impossibility, and so from the fact that the philosophy of the atmosphere prevents such a condition taking place.

The second, or indirect hot-air furnace in the cellar, is better, though open to many objections, which I do not deem necessary to discuss.

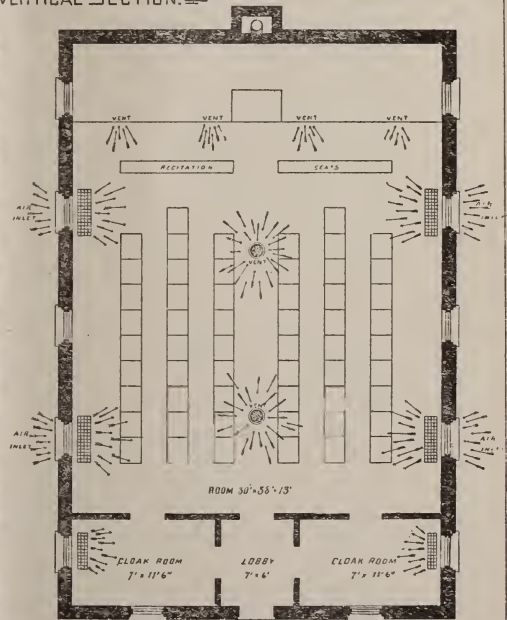
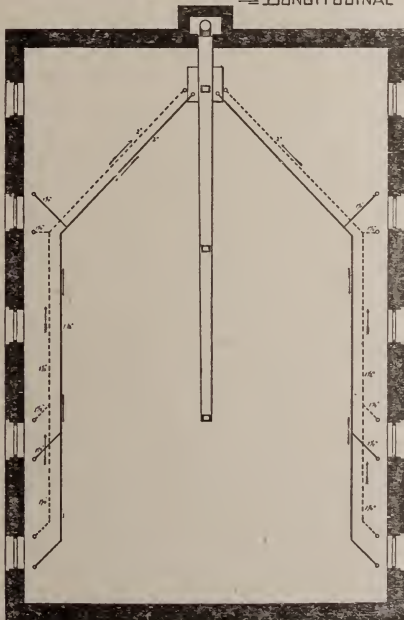
The third, or heating by steam, is good and much superior to the first and second methods, but the fourth method, of heating by hot water, is much more desirable than either hot air or steam, and on this point I am clearly certain in my own mind, and being so, have adopted the same for my own private dwelling. About the only thing a hot-air furnace has to recommend it for the purposes of heating our school-room is that, it being much inferior to either steam or hot water, it costs considerably less to erect the plant. Having by exclusion disposed of the hot-air apparatus in any form, the choice is between steam and hot water. Water boils at a temperature of 212° , consequently it is necessary to bring the temperature of the water in the boiler to that point before any heat can be expected, and, after the radiators have been filled with steam, if the fire goes down and the water ceases to boil, the system soon begins to cool; the steam in the radiators begins to condense, and as fast as condensation takes place their contents find their way to the boiler as water, leaving the iron only to cool off, and, as this takes place rapidly, the temperature of the room is changed too quickly. And, as the steam radiator as found in the market is quite thin, this change of temperature takes place in so short a time that in cold weather it is necessary

PLANS

FOR HEATING AND VENTILATING
ONE ROOM SCHOOL BUILDING.



LONGITUDINAL VERTICAL SECTION.



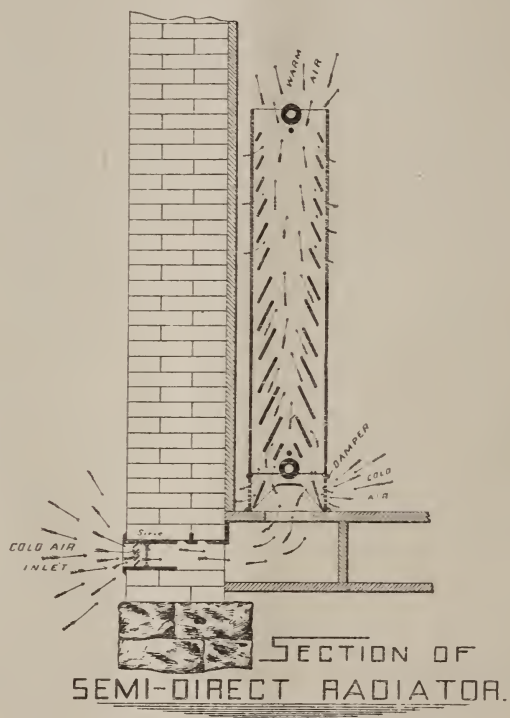
D. M. ROTHENBERGER,
ARCHITECT,
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to fire sufficient to keep the water at the boiling-point all the time, which requires almost constant attention and an unnecessary amount of fuel. Let us consider in contrast the hot-water system. I found several good hot-water furnaces. But decidedly the best is what is known as the Sunray hot-water heater. The superiority of hot water over steam is apparent, as it is a fact well known that when the system is properly installed the temperature of the water in zero weather need not be raised above 175° . The radiators being filled with so large a quantity of hot water, all that is necessary to keep a regular temperature during the greater part of the day is to bank the fire and regulate the draught so that the fire is merely kept alive. In fact, if the fire was drawn, the radiators would be eight or nine hours in cooling off. Another advantage possessed by this method is this, that in the early fall or late spring, when the days at times become very warm and the nights cool, all that is necessary to make the room comfortable in the morning is to make a small temporary fire, with light wood shavings or waste paper. If this fire is brisk it will not require more than ten minutes to raise the temperature of the water to say 60° or 100° , will make the room pleasant and aid in the admission of fresh air towards the middle of the forenoon, when the air outside becomes warmer. Referring to the plans, the furnace should be located at the stack or flue end of the building. The pipes, four in number, bifurcating, as it were, at the furnace and extending along both sides of the basement walls and close to the joist completes the circulation in the radiators. One of the two on either side taking the hot water from the top of the furnace, the other carrying the cooler water back, and discharging it into the bottom. The heat given off from the furnace and the 160 feet of iron pipes averaging one and three-quarters inches in diameter is sufficient to warm the floor of the school-room. This furnace will heat our school-room, containing 15,000 cubic feet of air, with one-third less coal (hard pea) than any other apparatus using either hot air or steam that I have been able to find, and in a few seasons will pay for its first cost in a saving of fuel. Starting at the stack and extending two-thirds of the distance back and immediately under the floor is a vent 8 x 10 inches constructed of galvanized iron. The stack end of this vent enters the air-flue above the point where the smoke-pipe enters the terra-cotta smoke-flue, and, being in close proximity to the top of the furnace, the hot air arising therefrom aids in warming the air in the vent and

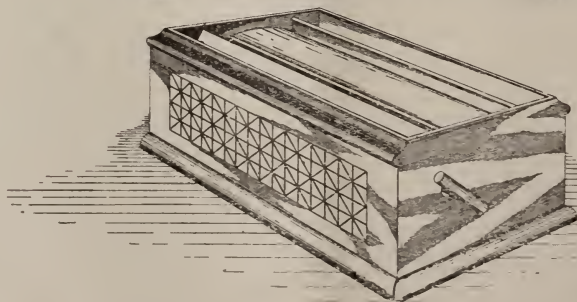
causes a current or suction, which draws the foul air through the registers in the floor, the first at the end of the vent-tube farthest from the flue, the second midway between the two ends, and the third under the platform.

We come now to consider the school-room proper, which is 30 x 38 x 13-foot ceiling, and is entered from the lobby 7 x 6 feet, or from either of the two cloak-rooms, each of which is 7 x 11 feet 6 inches. There are eight windows in the main-room, extending from a point two feet above the floor to within one foot of the ceiling. There are two windows in each cloak-room, one front and the other at the side. All the windows should be supplied with double shades or blinds, and so arranged that the light can be admitted below central or only at the top. The radiators should be six in number, four for the main-room, and two smaller ones for the cloak-rooms. The radiators in the main-room should be located immediately under the windows, as indicated in the plan, two on either side. In my search for a radiator which would not only heat the air in the room, but take cold air from the outside and discharge it at the proper temperature, pure and fresh, I was met by all kinds of picturesque ideas and designs. When I was about to give it up in despair I wrote to the Mott people, telling them that I had the heat all right in the basement of my school-house, as well as a means of taking the foul air from the floor-strata, but if I would turn on the heat in a room containing but 15,000 cubic feet of air and fifty pupils, in less than half an hour the air in that room would not be fit to live in. Could they help me out? By return mail I received a full description of the Fowler Semi-Direct Radiator and Flue, the important parts of which are shown in the drawings.

This radiator meets all requirements, easily controlled, ornamental, and makes ample provision for taking such quantities of air either from the outside or inside in such proportions as is necessary to maintain the proper purity of the atmosphere to be breathed. There is also provision made for closing off the outside air when the radiator is not in use. The ornamental open-work on both sides of the base is for the purpose of admitting air from near the floor of the room. Within the outer base is a cold-air box, placed immediately over an opening in the floor, communicating with the outer air. This has a closed top and ends with sloping open sides. At the base of the "V," formed by these sides and the sides of the base, are pivoted two dampers that are



— COLD AIR DAMPER. —



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so arranged that simultaneously both may be moved so as to cover the openings in the inner box, and thus exclude all outside air, or they may be moved so as to cover the open work of the sides of the base, and thus exclude all the air from the room, or they may be set in any position and locked, so as to admit a certain amount from the room, and the balance needed to circulate through the radiator from the outside, or *vice versa*. The air after being admitted to the base is drawn upward into the spaces of flues, one of which is formed by the union of every two loops of the radiator. These flues reduce to a minimum the friction caused by the travel and expansion of the air as it becomes heated. The sides of the sections or loops are provided with vertical flanges, which reach out to and nearly come in contact with corresponding flanges on the adjoining loops, thus forming a main flue with a large opening at the bottom, so as to freely admit a maximum quantity of air. On the face of the loops in sections are cast a series of short, oblique flanges, which by reaching out and meeting those on the next form a number of short, oblique flues, the lower ends of which being a sufficient distance from the vertical side flanges, so as to form a main flue on each side to deliver the air from the base into these flues. The upper ends gradually diminish in length as they near the top, and form a gradually-enlarging hot-air flue in the centre for the discharge of the air as it is heated within the short flues. Thus a strong upward draft of air is created by the commingling of the several smaller currents, and in this way the maximum amount of air having ample room for expansion is drawn into the spaces between the radiator sections, and heated to the highest possible degree at a minimum of friction. These closed vertical flanges at the sides of the sections extend upward only a sufficient distance to allow the currents of air to extract from the heated walls and flanges all the heat it is capable of receiving. The wall-boxes are provided with storm-shields, and insect and dust-screens, and, when desired, can also be furnished with moisture-racks. The 5 x 12 inch damper-boxes would admit all the fresh air necessary in our room for fifty pupils and seven six-inch registers, three on either side, within six inches of the ceiling, and one in the stack, together with the air taken from the three floor registers, would, without creating currents, take off all of the foul air. The system of heating and ventilating this house involves nothing new. Simply keeping close companionship with well-known natural laws, and applying the

inventions of those who have made the subject a life-study is all that is claimed. The great question with me is, Will it do any good to talk to teachers, school directors, and parents about improving the most important duty devolving upon them in relation to the health of the rising generation? A gentleman engaged in school-work said to me the other day, "Yes, I am delighted with your plan for heating and ventilating a school. I do not see how it could be improved. What will it cost?" I replied, "About \$350 complete." His reply was, "Well, you know, the average school director in the rural districts calculates that a school-house should be built for \$600. Now, if you can convince them that the heat and ventilation are worth \$50 more than half what they consider a complete house should cost, you will be on the highway to everlasting fame and fortune, and generations will rise up and call you blessed." I need hardly say that, as we agreed perfectly, further discussion on that point was useless. The laws of the State of Pennsylvania punish by fine and imprisonment your neighbor if he puts poison in your food or sells your minor son poison in the shape of whiskey or other intoxicants. If these are properly punishable offences and subjects of so much importance for the protection of the public that the State should take cognizance of them, why does the State not punish the board of school directors who receive under their control for educational purposes the children of the district, and crowd them into a foul, fetid atmosphere, to be poisoned by the exhalations from their own bodies daily, except Saturdays and Sundays, from five to six months in the year?

Should there be any difference in the eyes of the law what kind of poison is administered? Should there be any difference made from a legal stand-point whether the teacher dropped some poison in the water from which the children drink, or whether that same teacher should nurse diphtheria patients at night, and daily carry the disease to school every morning, and distribute the germs until a general epidemic closed the school entirely for want of pupils, and filled thirteen graves with murdered innocents? This crime was committed in the county of Lancaster, and within the sound of the church-bells of the city, less than three years ago, and thus the sins of omission and commission in our common schools are being committed daily throughout the length and breadth of our fair Keystone State. The State that pays out annually over \$5,000,000 for the education of the masses, and

omits to care for the health of her school-children, does not deserve the distinction heaped upon her. As the country becomes more thickly populated contagious diseases are more to be feared. Diphtheria and scarlet fever carry off thousands yearly, and as both are preventable diseases, and in their malignant form incurable, it is high time the State should regulate by legislative enactment their management, compelling quarantine, at least for helpless children. It is very gratifying to call attention to an Act passed at the last session of the Legislature, which is a step in the right direction, and it is hoped that more will follow. I refer to an Act to require boards of school directors and controllers to provide for the better protection of the health and morals of school-children in their respective school districts, as follows :

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same : That boards of school directors and controllers shall provide suitable and convenient water-closets for each of the schools under their official jurisdiction, not less than two for each school building where both sexes are in attendance, in their respective school districts, with separate means of access for each ; and, unless placed at a remote distance one from the other, the approaches or walks thereto shall be separated by a substantial close fence not less than seven feet in height ; and it shall be the duty of the directors or controllers to make provision for keeping the water-closets in a clean, comfortable, and healthful condition.

Section 2. Any failure on the part of school directors or controllers to comply with the provisions of this Act shall make them liable to be removed from office by the Court of Quarter Sessions of the county in which the schools are located, upon complaint made to the court under oath or affirmation of not less than five taxable citizens resident in the school district in which the school is located.

This, with the action taken by the Superintendent of Public Instruction in his admirable circular on the subject, reflects great credit, not only upon the Legislature, but Hon. John H. Landis, who introduced the bill in the Senate, and followed it up to its final consummation.

Local Sanitary Associations an Aid to the Local Health Boards.

BY FEMBERTON DUDLEY, M.D.,
Member of the State Board of Health of Pennsylvania.



THE relation of general education to the administration and enforcement of law, so frequently and constantly dwelt upon with reference to general statutes and ordinances, is particularly worthy of our consideration in reference to measures devised for the protection of public health. Paul, the great expounder of Christian doctrine, said, "I had not known sin except the law had said, 'Thou shalt not';" and it is quite certain that much of the moral and legal "sense" of an enlightened community is derived directly from knowledge—crude and imperfect though it may be—of written statutes. In this respect, certain laws, even if unenforced, could never become quite a dead letter so long as we should know of their existence. In other words, the commands and injunctions of the statute and common law greatly assist us in comprehending and appreciating the behests of the moral law and our duties and responsibilities to our neighbor. Thus law—even State and municipal law—enters into our lives, moulds our inclinations, determines our purposes, and, measurably, forms our characters. This it is—this silent, unostentatious, profound, omnipresent influence—which imparts to law its real "majesty," and which summons to its enforcement the resistless moral and physical force of a faithful and loyal citizenship. Law thus becomes, to the right-minded citizen, not so much a compelling force as a guiding rule of conduct and of life.

While we may not affirm that knowledge and intelligence are always sufficient to determine conformity with legal requirement, their influence tends strongly in that direction. And this is found to be particularly true in reference to the operation of measures designed to protect the public health. Not only the health official, but the private physician, finds in the human heart a certain natural pride, to which he may successfully appeal in his efforts to secure compliance with his sanitary suggestions, and that there are those in all communities who dislike reflections

against their intelligence only less than imputations against their integrity.

All public health authorities, and especially those having charge of large communities of people, find that sanitary education constitutes a large and most important portion of their labors. The Act of June 3, 1885, under which our State Board was established, lays down as one of its express duties the dissemination of sanitary information among the people, and the whole experience of the board demonstrates the wisdom and necessity of this legislative provision. This board has found that in proportion as our people become better informed respecting sanitary topics, the suppression and prevention of epidemics, and the maintenance of public health become more and more easy and practicable. Every year we see the growing and widening influence of the system of sanitary education thus established by the Commonwealth.

The Act of May 11, 1893, under which borough boards of health are being organized throughout our State, does not expressly enjoin the work of sanitary education upon these boards, yet it does not prohibit their members from taking such steps as may result in a more accurate and widely-extended knowledge of sanitary facts and principles among the people of these boroughs; and it is the object of this paper to suggest one of the methods by which this important desideratum may be secured.

The men,—yea, and the women,—who naturally lead us in matters of general intelligence, may be safely counted on to be our leaders also in sanitary knowledge. With this fact in view, we ought to secure as promptly as possible the active support and co-operation of all the physicians, all the clergymen, all the school-teachers, judges, lawyers, civil engineers, and prominent business men, and especially all the newspapers in each borough; and to this list should be added, in good large type, all the intelligent housekeepers and leaders of social life and activity. It would usually be impossible to secure active co-operation from *all* those above mentioned, and we should, therefore, obtain as large a proportion of it as we could.

These people should be organized into a "sanitary association," and should hold stated meetings for a variety of purposes: (1) for the consideration and discussion of sanitary questions, and especially those most intimately affecting their own community; (2) for the purpose of uniting, as individuals, in measures to promote the sanitary welfare of all; (3) to co-operate with the

Board of Health in securing general compliance with its suggestions and requirements ; (4) to aid the board with personal service, and, if necessary, with money and materials in the work of quarantining, nursing, etc., in case of actual epidemics requiring such aid ; (5) to establish and maintain a library of hygiene, or better, a hygienic section in a general library already existing or which may yet be established ; and (6) to adopt such other measures as events might suggest as expedient for the purpose of promoting the health of the borough and of its neighborhood.

In such an organization three or four special points should be carefully looked after : (1) the active membership of a due proportion of intelligent women should be secured ; (2) young men and women of public spirit should be encouraged to identify themselves with it ; (3) persons residing beyond the borough limits should not be excluded from its membership, since the health of a town or borough may sometimes be imperilled by the acts of those living beyond its boundaries, and the interest of such persons in general sanitation is, therefore, desirable ; (4) harsh and discourteous criticism of the acts and measures of the Board of Health in any meeting of the association should be discouraged by suitable rules and regulations, else it would be possible for the organization to accomplish much more of harm than of good to the community.

Even if such an organization should limit its membership to a select few, it could accomplish much in behalf of the health of the general public, and, in some instances, could secure results which the necessary limitation of health legislation places outside the official prerogative of a board of health. It could aid in exhibiting the health official as the real friend of the citizen, seeking to confer benefits rather than to impose penalties or inflict annoyances. It would bring the Board of Health and the public into closer sympathy with each other, and inspire a larger share of mutual confidence, and would do much to banish that foolish prejudice with which so many otherwise intelligent people regard the visits of the health inspector. It would lessen the number of public nuisances, restrict the spread of local epidemics, promote personal, domiciliary, and public cleanliness, and in numerous ways enhance the happiness and the material prosperity of the mass of citizens. Let us, in all proper ways, encourage the formation of local associations for the dissemination of a more general familiarity with sanitary science and art.

The Ounce of Prevention.

BY ABRAHAM M. BEITLER,

Director of the Department of Public Safety of Philadelphia.



THE prevention of contagion is coming to be a well-recognized duty of government. The municipality in which the health laws are the most comprehensive, and their enforcement the most intelligent and stringent, is usually the one in which the government best serves the public interests.

As a people grow to understand the duty of the mass protecting the individual, of the common treasury providing for the safety and the health of all, the health department is made more and more efficient. The protection of the public health is the highest and most unselfish exercise of governmental power.

This Convention of local Boards of Health of the State, called by the State Board of Health, is a step in the right direction. The call for this Convention met a ready response in Philadelphia, and I am pleased to state that there are present to-day three of the six members of Philadelphia's Board of Health, and we are here to pledge our city to do its share in carrying out the laudable objects desired to be accomplished by the State Board of Health.

When I was requested by Dr. Edwards, the chairman of the Committee, to prepare and read a paper before the Convention, I hesitated awhile before agreeing to do so. The request reached me at a time, the busiest of the year in my office, and the duties of my position give me but little time for anything outside of its regular and engrossing requirements. When I considered, however, the importance of this Convention to all the people of our State, I deemed it a duty to respond to the request to take part in the proceedings, not because I deemed that anything I might say would be of any great value, but because I desired to show my interest in the work and my willingness to co-operate. I appreciate the fact that there are many delegates present better versed in sanitary matters than I am, and whose remarks would be more valuable than mine can be. I concluded, however, that a few

minutes' talk on the work of the Health Board of Philadelphia in applying the ounce of prevention might not be without interest to those present, and that by comparison of our methods with those adopted in other parts of the State we might learn much, perhaps teach something. I shall, therefore, as briefly as can be, give some data as to the organization of the Health Bureau in the Department of Public Safety, and a brief *résumé* of its work in the past few years, embracing also the work done in other Bureaus of that Department, and in the Department of Public Works towards the general end of suppressing preventable diseases.

The people of Pennsylvania were among the first to appreciate and recognize the duty of caring for the public health. As far back as 1700 we find an act passed to prevent infectious diseases being brought into the province. Other laws to the same end were passed in 1749, 1750, and 1765. By the Act of April 22, 1794, a Health Office was established for the city and port of Philadelphia, and the laws above referred to were repealed.

The Board of Health, under that name, was established by the Act of 17th March, 1806, and it was made a body corporate.

By the subsequent Acts of 1818 and 1849, of but little interest to us now, the method of appointing members was changed and the powers of the Board added to. A study of all the different acts referred to will show that the powers and duties of the Board of Health were minutely defined; but all the acts referred mainly to the regulation and enforcement of maritime quarantine. That power is now, by the Act of 5th June, 1893, vested in the State Quarantine Board, and the local Board has now only to do with the preservation of the public health in Philadelphia,—a duty grave enough and difficult enough to engross the time and attention of those gentlemen who, without pay and at much personal sacrifice, serve their fellow-citizens as members of the Board of Health.

When, by consolidation, the limits of the city became co-extensive with the county, the Board of Health became a Department of the City Government. Under the Act of 1st June, 1885, it became a Bureau in the Department of Public Safety, conducted by a Board of Health of five members appointed by the Mayor, the sixth being the Director of the Department of Public Safety, who is, *ex officio*, a member and President of the Board. Its expenditures are regulated by City Councils, who annually appropriate to specific items the moneys to be spent during the year. Necessarily the work of the Bureau is limited by the sums appropriated. I would be unfair to our City Councils, however, if I

did not state that my experience has been that Councils have been as liberal with the Health Bureau as the moneys at their disposal have permitted.

Speaking in the most general way, the duties of the Bureau of Health are to prevent disease and to control the spread of contagious and infectious diseases. It is almost impossible, however, to treat these as distinct duties. What tends to prevent disease tends also to prevent the spread of contagious and pestilential diseases. It would be better, perhaps, to say that the duties are to apply the ounce of prevention. The Health Bureau, strictly speaking, has nothing to do with the cure of diseases. It is true that persons suffering with contagious or infectious diseases are removed to the Municipal Hospital. They are there given the best medical treatment. The entire institution is under the direction of Dr. William M. Welsh, a physician who has devoted the best years of his life to the study and treatment of those deadly diseases which are a scourge to the human family, and who, I may safely say, is without a superior in the knowledge and treatment of such diseases. While every effort is made to save the lives of the patients, the primary object in removing them is to prevent the spread of the disease by isolating the patient.

The work of the Bureau is divided by the Board into divisions as follows :

- Milk Inspection.
- Meat Inspection.
- Food Inspection.
- Chemical Analysis.
- Plumbing and House-Drainage Inspection.
- Nuisance Inspection.
- Medical Inspection.
- Disinfection.
- Vaccination.¹

¹ The Registration Office, though a very important division of the work done in the Bureau, has no duties directly connected with sanitation. Briefly, the work performed in this division may be thus stated,—

It is organized and operated under the Act of 8th March, 1860, for the registration of births, marriages, and deaths. It has been in operation since 1st July, 1860.

In collecting statistics as to births, two collectors are constantly employed. About 30,000 births are recorded annually.

All marriages are required to be registered. They number about 8,500 per annum.

The registration of deaths is very important. No body can be interred without permit issued. About 27,500 per annum are issued. In case of death from contagious disease special regulations must be complied with as to preparing the body, etc. In 1893 about 2,000 bodies were brought into the city for interment.

The division makes searches for records of death and issues certificates.

MILK INSPECTION.

In the absence of a comprehensive State law governing milk inspection, the city of Philadelphia is doing all that can be done to prevent the spread of disease through the agency of impure or infected milk.

By virtue of an Act of Assembly empowering her to do so, the city has appointed inspectors, who examine the milk offered for sale by dairymen, milk-venders, and shopkeepers, and condemn such as is found contaminated or diluted.¹ It is a matter of extreme regret that the Legislature, at its last session, failed to pass a bill to insure the people wholesome milk. It is earnestly to be hoped that at the next session the State Board of Health, backed by the combined influences of all the local boards in the State, will demand, in the interests of all our people, the passage of a proper bill. Pennsylvania is far behind other States in this matter, and is not doing her duty to her own people or to sister States by her inaction.

MEAT INSPECTION

is looked after by a small force of detectives and patrolmen detailed from the Police Bureau, who have the assistance of a veterinarian and a consulting veterinarian. They look out for tuberculous and actinomycosis among cattle, and for the poor, worn-out, and often diseased cattle shipped to us by our kind neighbors in the near-by counties for bologna meat, and also

¹ The division is under the control of the Chief Inspector of Milk. The city is divided into districts. To each is assigned an assistant inspector and a collector of samples.

A careful and complete record is kept of all dealers in milk, and each inspector is required to visit all the places in his district as frequently as possible, giving special attention to dealers suspected of violating the law. They visit the depots, stop milkmen on their routes, and, in general, keep as strict an oversight as possible on the milk supply. The collectors accompany the inspectors carry the apparatus used in making examinations, and take samples for analyses when directed by the inspector to do so.

The work done in 1893 was as follows:

| | |
|--|------------|
| Number of inspections | 30,417 |
| Number of quarts inspected | 446,567 |
| Number of quarts condemned | 21,550 |
| Number of quarts adulterated (water) | 18,273 |
| Number of quarts skimmed | 3,161 |
| Number of quarts colored | 116 |
| Number of cautionary notices | 1,149 |
| Percentage of adulterated and skimmed milk | 4.80 p. c. |

watch for immature veal, bad poultry, and for flesh unfit for food for any reason.¹

Their labors are not productive of the good which should be accomplished, owing to the lack of laws to govern the matter. Bills introduced at the last session to extend the powers of boards of health to the licensing and regulating of slaughter-houses, and to the prevention of the slaughtering and sale of very young calves, were defeated, much to the regret of every one familiar with the subject.

FOOD INSPECTION,

while not a distinct branch of the work of the Health Bureau, is looked after by the different inspectors, aided by the entire police force, who, whenever an infraction of the law comes under their notice, make immediate report and the matter is at once investigated.

CHEMICAL ANALYSIS.

The chemist has a thoroughly-equipped laboratory and makes careful analyses for the milk, meat and food inspectors, and also analyses of drinking water to enable the board to decide whether a well from which drinking water is taken shall be condemned or not. The laboratory was established in January, 1890, and its work has grown in volume and importance very rapidly since.

BACTERIOLOGICAL EXAMINATIONS

have, until recently, been made for the board by the Institute of Hygiene, the University of Pennsylvania, the Medico-Chirurgical Hospital, the Jefferson Medical College, or by Dr. E. O. Shakespeare in his private laboratory. The laboratory of the Bureau has, however, recently been equipped with all the necessary apparatus to make these examinations, and the Board, having the services of all these schools and its own chemist, is ready at any moment to make bacteriological examinations.

¹ During the year 1893, there were inspected 161,374 head of cattle. Of this number there were condemned and destroyed 328, including 253 suffering from tuberculosis, 9 from actinomycosis, and 6 from other causes.

There were inspected 43,374 calves, and condemned 843 too young to slaughter for food.

There were also condemned and destroyed 227 diseased sheep.

Sixteen persons were arrested and held to answer for selling or exposing for sale unwholesome flesh.

PLUMBING AND HOUSE-DRAINAGE INSPECTION.

Philadelphia is a peculiar city in many respects, but in no respect is her difference from other cities in this country so marked as in the way her people are housed. She had, January 1, 1894, 227,614 dwelling-houses. The records for the last four years have been accurately kept, and during those years the increases have been as follows :

| | |
|---|---------|
| Estimated number of dwellings December 31, 1889 . . . | 201,339 |
| Built in 1890 | 8,864 |
| Built in 1891 | 5,655 |
| Built in 1892 | 6,492 |
| Built in 1893 | 5,264 |
| | <hr/> |
| | 227,614 |

These are not the homes of the rich, but, almost all of them of the working classes, the people who make Philadelphia what she is, the great American city of homes.

The record of dwellings, and stores and dwellings combined, erected in 1890, 1891, 1892, and 1893, is as follows :

| | DWELLINGS. | | | | STORES AND DWELLINGS. | | | | Total. |
|------|------------|------------|--------------|-------------|-----------------------|------------|--------------|-------------|--------|
| | One Story. | Two Story. | Three Story. | Four Story. | One Story. | Two Story. | Three Story. | Four Story. | |
| 1890 | 7 | 6,883 | 1,947 | 27 | 61 | 169 | 141 | 1 | 9,236 |
| 1891 | 2 | 4,595 | 1,035 | 23 | 2 | 112 | 180 | 1 | 5,950 |
| 1892 | 1 | 4,956 | 1,522 | 13 | — | 166 | 250 | 3 | 6,901 |
| 1893 | 4 | 3,768 | 1,475 | 17 | — | 228 | 153 | 4 | 5,649 |
| | 14 | 20,202 | 5,979 | 80 | 63 | 675 | 724 | 9 | 27,736 |

Let me turn now to New York City as a contrast,—

A recent article in the *North American Review* states that in that city three-fourths of the population live in tenements.

[While it is impossible to give the data as to Philadelphia accurately, the Building Inspectors, since January 1, 1890, have issued permits for but *eight* tenement houses.]

The writer in the *Review* states that,—

“There are in New York 34,967 front tenements and 2,391 rear tenements, with population given by the Board of Health as 1,225,411 individuals. The total population of the city is 1,513,501. Six small down-town wards may, with confidence, be spoken of as forming the most crowded spot on earth. No obtainable statistics of English or continental cities show a population

approaching that of this district of New York. Nowhere else on the face of the globe are human beings packed together in such compact layers; nowhere are there so many of the layers."

* * * * *

"The population per square mile of these six wards was given, in 1890, as:—

| | | | |
|--------------------|---------|-----------------------|---------|
| Seventh | 197,200 | Thirteenth | 295,104 |
| Tenth | 347,888 | Fourteenth | 198,272 |
| Eleventh | 262,720 | Seventeenth | 252,834 |

"This is an average for the whole district of 252,834 to the square mile.

"Even the lowest of these figures shows a higher population than occurs anywhere else; and the population of the Tenth Ward, to any given area, is more than twice that credited to the most thickly populated district of old London, where 175,816 people to the square mile dwell, and have been comparatively comfortable. Several continental cities contain more tightly-crowded districts than London ever did, but none approaches the terrifying congestion of our 'teeming Tenth.'"

Philadelphia is justly proud of her title, "The City of Homes." I love to hear her spoken of by that name. She takes good care that these houses shall answer their best purposes, and has done nothing so important for the healthfulness of these dwellings as in providing for *plumbing and house-drainage inspection*.

This matter is regulated by the Act of 30th June, 1885.

Briefly stated, the duties of this division consist of examining and approving plans for systems of house-drainage for every new building where a sewer is accessible, and those for buildings in rural sections where house-drainage is disposed of to wells and subsoil systems. After the work is commenced the inspection is kept up from time to time until the completion of the work. The inspector also examines and reports upon old systems of drainage, when complained of, and makes recommendations for the correction of defects. The division also prepares plans and specifications for the health officer for the abatement of nuisances respecting house-drainage. All privy-wells about to be abandoned are inspected, to ascertain whether the contents have been entirely removed before filling up the well. The Chief Inspector has numerous consultations with architects, builders, and master plumbers, arising from the numerous and varied complications

in planning house-drainage. All applicants for certificates as master plumbers are required to be examined by the Chief Inspector.

Some idea of the work done may be gained from the figures of last year's operations in this division.

During the past year there was submitted and approved plans for 4,501 new and 12,730 old buildings; total, 17,231.

There were returned by the inspectors and filed 1,778 plans for new, and 10,708 plans for old buildings; total, 12,486.

Total number of visits of inspection, new and old buildings, of 1893, was 49,764; on buildings for which plans were submitted in 1892, 11,390; and for 1891, 1,007; total, 62,161. There were referred from the Nuisance Division to this complaints respecting house-drainage involving 1,035 buildings. Of this number, 770 were inspected and reported to the board with the necessary recommendations for their abatement; 50 were abated by owners, and 197 were referred to other departments where they properly belonged, and 18 are pending.

Resolutions of the Board were referred to the Health Officer involving 509 houses; plans and specifications were prepared representing 58; abated by owners, 350; pending, 101. Privy-wells abandoned, 2,076; constructed (for which permits were issued), 201. Applicants for registration, 154; applicants examined, 133; applicants who failed to appear for examination, 6; applicants rejected, 56; applicants accepted, 80; certificates issued to persons previously registered, by reason of dissolution of partnership, 12; certificates in force, December 31, 1892, 598; certificates surrendered or cancelled, 23; certificates in force, December 31, 1893, 671.

Under the resolution of the Board of Health a sanitary survey was made of the Schuylkill River and the various tributaries flowing therein between the fore-bay at Fairmount and Flat Rock dam, with the result that the Bureau of Surveys, Department of Public Works, has extended and is continuing to extend branches of the intercepting sewer to the Twenty-first and Twenty-second Wards, whereby this Bureau has been enabled to compel the diversion of large quantities of deleterious matter from the river and its tributaries.

NUISANCE INSPECTION.

Every policeman in Philadelphia (of whom there are 1,750) and all employés of the Health Bureau are sanitary inspectors,

required to report nuisances prejudicial to the public health coming under their notice. During 1893 the Bureau of Police made 3,081 sanitary reports, most of them embracing several nuisances. These reported nuisances are referred to the Chief Nuisance Inspector, who in turn assigns them to the different Assistant Nuisance Inspectors, of whom there are at present twenty. They are carefully investigated, and, if the complaint is well founded, the nuisance is ordered abated. Failure to comply gives the Board the right to abate the nuisance at the expense of the property on which the nuisance exists. There have been expended in removing nuisances during the past four years the following sums :

| | |
|-------------------|-------------|
| In 1890 | \$14,586 65 |
| “ 1891 | 13,044 87 |
| “ 1892 | 28,312 22 |
| “ 1893 | 24,799 39 |

Many of the nuisances reported are such as come within the province of the Department of Public Works to remedy. Of those, may be mentioned foul inlets and gutters, choked or broken sewers, leaking gas-mains, insufficient drainage or water-supply, dirty streets, or garbage not removed. By concert of action between the two departments, nuisances of this character are reported by the Department of Public Safety, and at once remedied by the Department of Public Works. In this connection, the excellent work done by the Department of Public Works during the past few years should be mentioned. In the matter of the improvement of the city's water-supply, the city has added about 121 miles of distributing mains within the past three years, and at this time has a daily pumpage capacity of 230,540,000 gallons, and a storage capacity of 1,017,288,614 gallons of water in its reservoirs. During the year 1893 the total pumpage amounted to 65,382,736,978 gallons.

A revision of the system of sewers has been particularly beneficial to the health and welfare of the people, in extending main sewers and connecting up and completing others partially laid, that had been constructed in disconnected sections. During the years 1891, 1892, and 1893, there has been an unprecedented number of sewers built ; about 150 miles.

Directly connected with the health of the people is the purity of the water-supply. For years an intercepting sewer system has

been in course of construction, emptying below the Fairmount dam, and extending to the northwestern section of the city, receiving and intercepting all drainage from entering the River Schuylkill, from which the city takes its water-supply. The usefulness of this sewer in excluding the pollution from the river of all drainage from thickly-settled areas, which would otherwise have contaminated the water-supply, is incalculable. During the past three years nine miles of this sewer have been constructed.

The object of the Department of Public Works has been to plan a complete drainage system for the city, and, with this object, each section has been carefully considered in advance, to provide the necessary main sewers, capable of accommodating the present and future requirements, in order to secure a perfect drainage to each section of the city. There are to-day hundreds of houses, which formerly discharged kitchen sewage over the footways into the gutters, that have been compelled to underdrain, and all such waste is now discharged into the sewers.

Improved street pavements have much to do with the cleanliness of the city and with public health. Since 1891 many streets have been repaved with improved material, of which 106 miles were with sheet asphaltum, 64 miles with vitrified brick, and 174 miles with Belgian block pavement; 344 miles in all. Macadam pavements in the suburbs are not included in this list.

There was laid south of Pine Street and east of Broad, in one of the oldest sections of the city, containing many small streets densely populated by the poorer class of people, a number of miles of improved paving. All the streets in this section have been repaved, during the past year, with either sheet asphaltum or granolithic pavement; materials impervious to absorption, laid in sheets, with a uniformly smooth surface from curb to curb. This character of paving prevents the accumulation of waste matter, usual in the joints and seams of blocks or other paving, and can all be readily flushed with water and kept thoroughly clean. In this district alone, five miles of granolithic street pavement were laid, and four miles of sheet asphaltum in 1893. Each street thus paved was thoroughly underdrained and provided with fire-plugs.

Better regulations in the Bureau of Street Cleaning have improved the sanitary condition of the city. These regulations require a more thorough and frequent cleaning of streets, gutters, and inlets throughout the entire city.

In this connection I would refer to the resolutions of the Board of Health which required the removal of all hogs outside the city limits on January 1, 1893.

The Department of Public Works, last year, secured the disposal of garbage in one district by cremation, and from the remaining four districts it was carried outside the city limits. Authority was granted by Councils to contract for the year 1894 for the disposal of all garbage, etc., by cremation, in all of the five districts of the city. The prompt removal and disposal of all garbage and waste in this manner will aid in securing the best sanitary conditions for the city. A further improvement by the Bureau of Street Cleaning is the requirements of the specifications for this year to compel all ashes to be removed before 12 o'clock noon on the day of collection.

A thorough lighting of the streets of the city, in addition to safety given the public, aids in securing cleanliness and prevents the abuse of depositing waste and objectionable matters on the highways. There are at present 21,797 gas-lamps, 9,519 gasoline lamps, and 3,584 electric lights lighted every night during the year, and large increases are made in these methods of lighting each year. All of these matters lead to better sanitary conditions.

By co-operation between the Department of Public Works and the Department of Public Safety, 100 sheet-iron garbage boxes, each with a capacity about equal to a barrel, substantially built, but not too heavy for handling by the garbage-collector, were put up last year in that part of the city in which the small streets have been paved with asphalt or granolithic. Great difficulty has been experienced to prevent the people from throwing garbage and household waste into the streets. After the boxes were put up the police were instructed to make the people familiar with their purposes, and to induce them, as far as possible, to carry their garbage and put it into the boxes and to enforce the ordinance prohibiting the dumping of the material in the streets. With a little patience and some work, the results desired have been accomplished, and the reports received, both by the Bureau of Street Cleaning in the Department of Public Works and by this Department, are to the effect that the boxes were used by the people very generally. They are emptied daily and, whenever occasion requires, are washed and disinfected. Their number will be added to this year.

In anticipation of an invasion of cholera, Councils early in

1893 made an appropriation of \$20,000 for sanitary inspections. The force of Assistant Nuisance Inspectors was immediately increased to thirty, and the work of a thorough house-to-house inspection was begun.

This work was kept up until cold weather set in, and 68,639 houses were visited and inspected. These inspections resulted in the discovery of 10,363 nuisances, of which 9,128 were abated by the owners after the service of the proper notice by the Board of Health.

In this connection I cannot fail to mention the assistance rendered to the Department, last year, by the Women's Health Protection Association, and by the College of Physicians. The former association is a society composed of the women of Philadelphia, who adopt as a cardinal plank in their platform that each member shall, first see to the sanitary condition of her own home; and, secondly, assist the health authorities by calling to their attention public and private nuisances coming under the notice of the association or any of its members. The College of Physicians appointed a special committee on cholera, and during the year the committee reported many nuisances, which were at once investigated.

MEDICAL INSPECTION.

Under the Act of Assembly of January 29, 1818, all cases of contagious or infectious diseases must be reported at once to the Board of Health. If the patient is in destitute circumstances or the conditions surrounding the case are such as to make it proper, the patient is removed to the Municipal Hospital. This hospital occupies a tract of about nine acres, at Twenty-second Street and Lehigh Avenue, and is admirably equipped to treat the diseases which the board has decided to be contagious or pestilential. These diseases are Asiatic cholera, relapsing fever, yellow fever, scarlet fever, diphtheria or membranous croup, typhus or ship fever, epidemic cerebro-spinal meningitis or spotted fever, small-pox and varioloid, typhoid or enteric fever, or any other disease which may at any time assume either generally or in some particular locality a pestilential character.

The hospital has a leper house, a portable small-pox hospital, with accommodations for twelve patients, and a pavilion hospital for diphtheria cases, with private wards for pay patients, and accommodations for sixty patients in all. This pavilion hospital

was built in 1893. It is built on the most modern plan, and has laundry, cook-room, steam-heat, and ventilation, and it is so arranged that all the attendants are housed in an administration building distinct from the sick wards. It cost \$16,500. The main hospital building was erected in 1865 and has about 200 beds.

Every case of contagious or infectious disease not removed to the Municipal Hospital becomes at once a case to be carefully watched until its termination. An Assistant Medical Inspector is at once assigned to the case, under instructions minutely set forth in a printed pamphlet of fourteen pages. These instructions require a detailed report on each case to be made to the Chief Medical Inspector. The assistant must make a study of the surroundings of the case. If there are children subject to contagion, the school attended by the children is at once advised and the children are not permitted to attend until all danger is past. If the disease is small-pox, all those in contact are vaccinated. An inquiry is at once instituted, to ascertain from whence the patient came or with whom he has been in contact, so as to trace the disease to its source if possible. A careful examination of the premises is made to ascertain whether any local cause for the disease, or any cause liable to lead to the spread of the disease, can be found, and if such is found the remedy is at once applied. If, in the judgment of the Medical Inspector, isolation of the family cannot be relied upon without a strict watch being kept, such watch is kept, a quarantine officer being detailed for duty day and night, and no one permitted to enter the premises except those necessary for the care of the patient. In this quarantine work the sum of \$21,199.50 was expended in 1893, and though there were forty-two cases of small-pox in Philadelphia in 1893, and twenty-four distinct centres from which the disease could have spread and become epidemic, the disease was stamped out, and there was not a single case of small-pox in the city on the first of the year. There were thirty-three cases in the Municipal Hospital last year.

With the family in which the contagious or pestilential disease prevails the Medical Inspector leaves a pamphlet giving general instructions as to the isolation of the patient and the proper disinfectants to use, and if the family be too poor to supply disinfectants, they are supplied by the city. Each police station-house is made a depot for these disinfectants, and the Medical In-

spector in most localities has but a short distance to go to secure what is needful. The city expended for disinfectants, in 1893, \$5,199.97. A written report on the case is made and careful watch is kept over it until the patient dies or recovers. If death occurs, a public funeral is prohibited; and in the case of death from any of the several contagious or pestilential diseases before mentioned, burial within thirty-six hours is mandatory, and the corpse must not be exposed to view and must be prepared for burial under the strict rules of the Board. Disinterment of the remains is not permitted within ten years.

DISINFECTION.

This is of two kinds,—disinfection as a preventive, and disinfection of premises, goods, etc., in which or on which contagion has existed. When the patient dies or recovers, the Disinfectors are given the case to attend to. He decides, from the history of the case and from the character of the disease, how the work shall be done and what he will use. He details an Assistant Disinfectors, with minute instructions what to do. The Disinfectors carry out the orders, and makes a written report. The Assistant Disinfectors fumigated and disinfected in 1893, 2,623 houses. For the disinfection of carpets, bedding, hangings, and clothing the city has built a model disinfecting plant at the Municipal Hospital. A detailed description of the plant would be out of place here, but briefly, it is a double steam-chamber supplied with steam-pipes for heating, direct pipes for introducing steam at high temperature, and exhaust pipes. It has a railroad running through it. The goods to be disinfected are placed on a car or hung on racks on the car. One end opens into the receiving room, the other into another and distinct room where the disinfected goods are packed to be sent home. The results accomplished are more than satisfactory. The plant has been examined by the United States Marine Hospital officials and pronounced the best in this country. It and the building in which it is erected cost \$10,743.50. Goods are hauled to the plant in a wagon built for that purpose, and taken back in another specially-constructed wagon used only for that purpose. A charge for the service is made if the parties are able to pay, otherwise the work is done at the public's expense.

During the warm weather the Disinfection Division runs a tank mounted on wheels and pulled by two horses, which is filled

and refilled with disinfecting solution and the contents used to disinfect, by hose and buckets, cellars, cess-pools, alleys, gutters, and inlets. The good work thus accomplished can scarcely be calculated.

In addition, all the cells in the several police station-houses (there are 41 houses) are kept sweet and clean with disinfectants, a store of which is kept on hand in each station-house for this purpose.

VACCINATION.

The Board of Education has rules prohibiting a child who has not been vaccinated from attending school. The city provides annually for gratuitous vaccination with bovine virus. There are twenty-three vaccine physicians, appointed after civil service examination. Each must have an office in his district, with his sign as vaccine physician displayed. He is provided with the "points" and is paid forty cents for each successful vaccination. During 1893, this service cost the city \$6,213.20.

The roster of the Bureau of Health during 1893 was,—

| | |
|-----------------------------------|----|
| Main Office | 7 |
| Health Office Division | 4 |
| Registration Division | 12 |
| Medical Inspectors | 22 |
| Nuisance Inspectors | 34 |
| House-Drainage Division | 14 |
| Milk Inspectors | 11 |
| Disinfectors | 7 |
| Municipal Hospital | 5 |

116

(The meat inspectors are carried on the roll as employés of the Bureau of Police.)

The board annually prints and distributes pamphlets giving general and easily-understood directions for the preservation of the health, for cleanliness, and for emergency treatment. The titles of the pamphlets issued in 1893 were,—

- Small-pox and its Prevention.
- Prevention and Restriction of Typhoid Fever.
- Prevention and Restriction of Diphtheria.
- Prevention and Restriction of Scarlet Fever.
- Cholera, Means of Disinfection.
- Disinfectants and How to Use Them.
- Sunstroke, Precautions and Treatment.

Treatment of the Apparently Drowned.

Rules for the Management of Infants during the Hot Season.

Influence of Milk in Spreading Disease.

Many of these were printed in German, French, Italian, and Hebrew.

I have perhaps touched upon matters which the doctors attending this Convention will deem they could best handle. I admit that they are correct, and yet a layman can aid in what Dr. Bowditch terms "State Preventive Medicine." In fact, he said, in his centennial discourse: "It is with a feeling somewhat akin to regret that I must say we owe more to the laity than to the profession the awakening of the spirit which governs this epoch."

In conclusion, let me say that, in presenting this *résumé* of work done by the Philadelphia Health Board, I do not claim that it is perfect, or that it leaves nothing to be desired. On the contrary, I believe the subject of State preventive medicine is just beginning to be understood. People are day by day learning how easy it is, with intelligent direction, ample authority, sufficient force and funds, to prevent the filth diseases. When they come to appreciate the tremendous money value of American life, and the impetus a low death-rate gives to a State, a city, or a town, they will spend money in the direction of the preservation of the public health in such sums that the present outlay will appear small in comparison. Take Philadelphia as an instance. From August, 1871, to June, 1872, she had an epidemic of small-pox. During that time there were reported 15,629 cases and 4453 deaths. Her population by the census of 1870 was 674,022. The conditions in the first stage of that epidemic were precisely the conditions of 1893, when there were twenty-four centres from which this dreadful disease could have spread, and inevitably would have spread, if the city had not been abundantly able to cope with each outbreak.

In 1871 we had no Assistant Medical Inspectors, hence no oversight of the different cases. We had no appropriation to quarantine infected houses; we had no disinfectors, and no disinfecting plant, the bedding and clothing of the patient after he died remained to spread the disease. The wonder is not that we so well controlled it in 1893, as that its ravages in 1871 to 1872 were not more severe.

Massachusetts established, I believe, the first State Board of Health, and that was in 1869. Pennsylvania has been tardy

in doing her duty to her people in this matter. It was not until June 3, 1885, that a State Board was established, and it was not until 1893, when Governor Pattison affixed his signature to the bill then passed, that an appropriation anywhere near adequate for its important work was made by the State. We have a population which in many sections is densely massed, and where this condition exists is found squalor, filth, ignorance, and sometimes bigotry interfering with sanitary work. Pennsylvania owes it to these people, to the rest of her citizens, and to her sister States to equip her State Board with ample funds to meet every emergency, and with wise but stringent provisions of law to govern every case. Let us resolve that we will each work in our city or town, keep our houses in order, ever extending the helping hand to other communities, if they are threatened with epidemic disease, and that we will all together demand of the next Legislature that wise laws for the preservation of public health be passed, and the State Board, which has done such splendid work with the little it has had to work with, be furnished with money sufficient for any emergency. Funds thus appropriated can be used if the emergency arise, and I know will not be used if, happily, the occasion for their use does not occur.

I apologize for the length of this paper. I can only hope that my remarks may contribute ever so little to the success of this meeting, for I have, since I have been the President of the Board of Health of Philadelphia, taken a deep interest in that branch of the work of the Department of Public Safety. It concerns the happiness of the people, their comfort, their peace of mind, and the prosperity of my city and State as much, if not more, than that of any other Bureau of the Department.

The Bureau of Health of Philadelphia is to-day better equipped than it ever was.¹ The fact is due to the liberality of Councils, their wisdom, and the zeal of the members of the board, and the hearty co-operation of the Mayor, the Director of the Department of Public Works, and of each Bureau in the Department of Public Safety.

¹ Boston's death-rate in 1893 was 24.02 per 1000 living persons.

New York's death-rate in 1893 was 23.52 per 1000 living persons.

Philadelphia's death-rate in 1893 was 21.20 per 1000 living persons.

Philadelphia's death-rate in 1892 was 22.25 per 1000 living persons.

Philadelphia's death-rate in 1891 was 21.85 per 1000 living persons.

In 1893 there was a decrease in diphtheria cases reported of 1902, and of scarlet fever 3501, and a decrease in deaths from diphtheria of 543, and from scarlet fever 218.

How the State Board of Health and Local Boards May be Mutually Helpful.

BY BENJAMIN LEE, M.D.,

Secretary of the State Board of Health of Pennsylvania.



MR. PRESIDENT AND GENTLEMEN, MEMBERS OF THE STATE SANITARY CONVENTION: It is a matter of congratulation to my mind that this first conference of the central health authority of this State with similar authorities throughout the entire Commonwealth takes place in this city, Harrisburg, the capital of the State; and this for two reasons,—two especially,—although many others may suggest themselves to your minds. First, because we thus enjoy the privilege of having the Chief Executive of the State as our presiding officer.

Your Excellency, Mr. President, presided at the birth of the State Board of Health. I will not call you its father, but I may perhaps say that you were its *accoucheur*. And in a case of prolonged and difficult parturition, such as resulted in bringing into existence the State Board of Health, it is doubtful to say which is the more important. You had no hesitation in affixing your name to the law which created this Board, because you were in entire sympathy with the objects of the law. You named the members of this Board entirely without regard to political affiliations. You have never failed, sir, in your biennial messages to the Legislature to recommend such health legislation as the State Board of Health deemed important, and, in pursuance of its duties as assigned by law, suggested to you as necessary to improve the condition of the health of the Commonwealth. More than this: In all your direct relations with the Board you have taken pains to make it understood that you were ever ready to co-operate with it in every measure which it might deem essential to adopt for the protection of the public health. You presided at our first State Sanitary Convention, held more than eight years ago in the city of Philadelphia, a convention which, I may say in passing, brought together the most eminent sanitarians throughout the entire United States.

I have no hesitation either in saying that but for the fact that you recommended in your last message to the Legislature the

enactment of the law which will enable every borough in the State to establish its own board of health, this Convention would to-day have been impossible—not always so—its day would have come. For even in this dear, sleepy old State of Pennsylvania, the world does move. We should some day have been enabled to call together such a conference, but it would not have been to-day.

I desire, Mr. President, in the name of the State Board of Health, to thank you for the unfailing aid and encouragement which you have given us in the performance of duties which have been to a certain extent laborious and difficult. You can scarcely appreciate the degree to which we have felt your kind encouragement and the assistance that it has been to us.

The second reason why I feel that it is well that this conference has met in the city of Harrisburg is because I consider that the capital of a State should be its metropolis in the true sense of the word ; not its greatest city in population ; not its largest city in area ; not its richest city, but its standard city. That is the literal meaning of the word "metropolis." It should be the model city of the State in all matters of administration, so that whenever a State Board of any kind is applied to for instruction in regard to methods of municipal administration, it should be able to say, "Go to Harrisburg ; study the methods which they have there, and you need nothing further."

Now, in certain respects, I am quite willing to agree that Harrisburg is a model city, but in the matter of a board of health it is acting under an old charter which makes no provision for such a body. It is the usual method—very unsatisfactory—of substituting a sanitary committee of councils. I need scarcely take your time to demonstrate why such a body is unsatisfactory. I know very well that there are certain exceptions to this rule in this State,—and I trust Harrisburg is one of them,—instances in which the sanitary committee of councils is doing excellent work. I have seen their work since coming to Harrisburg, and know that it is adopting admirable methods in stamping out the diphtheria which is prevailing in the city, and which I trust will soon be at an end. But I do believe that any body of men discharging their duty so well as a sanitary committee could do better work as a board of health. I trust, therefore, that the councils of Harrisburg will be so impressed by the deliberations of this conference and by the importance, the powers, and the possibilities of local

boards of health, as here demonstrated, that they will try to contrive a way to convert the sanitary committee into a board of health.

I cannot conceive of any way in which I could better carry out the thought of the paper which I was to present than by briefly referring to certain of the requirements of the law which established the State Board of Health, and certain requirements of the law which established boards of health in boroughs, and showing wherein, in regard to those requirements, we may help each other.

I do not think I could make you gentlemen understand the absolutely helpless and hopeless condition in which the State Board of Health found itself when it was first established. But if you can picture to yourselves—to compare small things with great—General Meade riding down to the field of Gettysburg in the midst of his staff, followed by perhaps half-a-dozen regiments and a few untrained militia to meet the veteran hosts of Lee, you may form some slight conception of the dismay which we felt when we found arrayed against us the armies of pestilence and filth, led on by the powers of ignorance, greed, and avarice, intrenched in every part of this immense domain of 45,000 square miles, and at our backs only five or six trained boards of health, officered by as many able men, and here and there a moribund sanitary committee. To attempt to effect sanitary organization in the State seemed to be almost hopeless. But we had the Legislature to appeal to. Our first attempt, as I said this morning, was to obtain the establishment of boards of health in townships. In that we utterly failed. We next attempted boards of health in boroughs. This was also a failure. Then we tried for county boards. In that we failed. So that we were defeated at every point by the powerful combination of those whose pecuniary or personal interests might be endangered by sanitary reform, until the last Legislature convened; and then, with the aid of our efficient and sympathizing Executive, as I have said, we have accomplished this long-striven-for result, and every one of the 700 boroughs in the State is now entitled to its legal board of health.

The first and possibly the most important way, then, in which local boards can help the State Board is simply by organizing and existing in a state of active efficiency, thus giving the latter that sense of confidence and strength which comes from the knowledge that it has disciplined forces behind it ready for every emergency.

In the next place, the law which creates the State Board of Health states that it "shall especially study its vital statistics." Now, vital statistics are as essential to a State Board of Health and to a State as is taking the account of stock to a merchant. They constitute the only possible way in which the State Board of Health can know how the State stands in this great matter of public health,—whether the State as a whole is improving in its health and in its sanitary conditions; whether certain localities are improving or retrograding. If the latter, what the conditions are which are checking progress, or may be the cause of retrogression in these localities, and what steps the State Board may take in order to improve these conditions.

I could mention a dozen points in which vital statistics become essential to the working of a State Board of Health, and to the welfare of the State. They are even more important than manufacturing statistics, labor statistics, or the statistics of agriculture.

Now, it is impossible for a State Board of Health to obtain statistics unless each local board in the State will collect those statistics; and I suggest, therefore, as the first lines on which the local boards can be helpful to the State Board, the establishing as early as possible of a system of vital statistics,—to collect the number of births, the number of deaths, and the number of contagious diseases. You are also given the power to collect the number of marriages. In all large cities I regard this as an important feature; but if it should be found in very small boroughs that that is a burden, the State Board of Health will not insist upon it, from the fact that there is already a very efficient system of registration of marriages by counties. At the same time we shall be very glad if any borough chooses to register marriages, to make that registration efficient at the State capital, as we certainly can do.

The State Board of Health is also ordered to disseminate information upon certain subjects which regard the public health, such as "sanitary investigations, inquiries respecting the causes of disease, especially of epidemic diseases, including those of domestic animals, the sources, mortality, and the effects of localities, employments, conditions, habits, food, beverages, and medicine, on the health of the people." It is required to publish information on these and similar subjects to the people of the Commonwealth. In order to do so it avails itself of the State

printing-press to have circulars on all these subjects struck off, and is ready to distribute such circulars with the assistance of the local boards of health. It feels that those local boards know just where to put every circular which it has prepared much better than it can. It stands ready to furnish the local boards these circulars in reasonable quantities, so that in the event of epidemics, or if on any other sanitary point they wish to convey information to the people of their community, they can have the means of doing so at once through the distribution of the same. Tens of thousands of these circulars are distributed every year.

Section 8 of the State Board of Health law says, "It shall be the duty of all health officers and boards of health within the State to communicate to said State Board of Health copies of all their reports and publications, and also such sanitary information as may be requested by said Board." In order to facilitate such reports to the State Board of Health, it has prepared a blank, which it has sent to every local board, on which the more important points may be very briefly stated. It requests every local board to return this to the central board at the earliest possible date after the first day of January of each year. In addition to such information furnished, the State Board of Health will be most happy to receive any additional reports which any local board may make upon special subjects, and to embody such reports in its own annual report to the Legislature.

Again, local boards of health can greatly assist the State Board of Health in promoting such legislation as the latter considers desirable, and every two years takes the liberty of presenting to the Chief Executive of the State, and requesting his assistance, in recommending action by the Legislature. The Board prepares bills for such purposes, as, for instance, to name one among many, the protection of water-supplies,—one of the most important subjects which has ever been brought to the attention of the Legislature,—and will send copies of any bills it desires to have passed to every local board in the State; and, so far as they commend themselves to the good judgment of the local boards, we trust the State Board will have their assistance through their representatives in the Legislature, for their promotion and enactment.

I would like to read a brief letter which has been placed in my hands by the President of the Conference with reference to another point:

MR. JOSEPH F. EDWARDS:

Sir:—

I have been elected a delegate to the State Convention of the State Board of Health, but cannot attend for the reason that I cannot afford the expense. I cannot afford, in justice to my family, to work, and do the full work, and get pay in abuse only, and spend \$25 to \$30 going to the Convention, when there was \$50,000 appropriated for the use of the State Board of Health.

Yours, etc.

Now, I desire to correct the impression which that worthy delegate has with regard to the amount appropriated for the use of the State Board of Health. The entire amount is just \$6000 annually, out of which comes the salary of its secretary, which is \$2000, leaving \$4000 for the sanitary work of this entire State. I leave you, gentlemen, to judge how far that amount is adequate to the duties imposed upon this Board; and to consider whether you will render the State Board your aid at the next Legislature in having that amount increased to at least a reasonable extent.

The \$50,000 referred to in the communication just read constitutes a distinct and special appropriation, which the last Legislature made at the suggestion and request of the Governor, to meet any great emergency threatening the health of the people, which may be so utterly overwhelming in its character that neither the State Board of Health, nor local boards of health, nor local municipal authorities are able to meet it,—such, for instance, as that which confronted the State Board of Health, when, in consequence of the fearful flood at Johnstown, that entire valley might have become a valley of death in consequence of the immense numbers of dead bodies, both of human beings and domestic animals, polluting both air and water, but for the precautions then taken under the direction of the Board. You all know how that emergency was met.

Now that \$50,000 can be used by the State Board of Health only when, in the judgment of a board constituted by the last Legislature, consisting of certain State officers, it is considered that an emergency exists requiring its expenditure, or the expenditure of a portion of it, but under no other circumstances. It is not available for defraying any of the ordinary expenses of the Board.

The duties imposed upon the State Board of Health, and for

the discharge of which it must have money, are as follows (I have read certain of them in regard to its sanitary investigations): "It shall, when required by the Governor or the Legislature, and at such other times as it deems it important, institute sanitary inspections of public institutions or places throughout the State. It shall codify and suggest amendments to the sanitary laws of the Commonwealth, and shall have power to enforce such regulations as will tend to limit the progress of epidemic diseases.

"In cities, boroughs, districts, and places having no local board of health, or in case the sanitary laws or regulations in places where boards of health or health officers exist, should be inoperative, the State Board of Health shall have power and authority to order nuisances, or the cause of any special disease or mortality, to be abated and removed, and to enforce quarantine regulations as said board shall direct."

And I may say that the principal work of the board has been just in compliance with the requirements of this section. Up to the present time there have been so few places which have had local boards of health that we have been constantly called upon to remedy just the conditions which you gentlemen will now have under your own supervision in every borough in this Commonwealth, and which exist in an immense number of villages and hamlets which are yet unincorporated.

"It shall be the duty of the State Board of Health and Vital Statistics to have the general supervision of the State system of registration of births, marriages, and deaths, of prevalent diseases, and of practitioners of medicine and surgery, to prepare the necessary methods, forms, and blanks for obtaining and preserving such records, and to insure the faithful registration of the same in the several counties, and in the Central Bureau of Vital Statistics at the capitol of the State. The said board shall recommend such forms and amendments of laws as shall be deemed to be necessary for the thorough organization and efficiency of the registration of vital statistics throughout the State. The secretary of the State Board of Health and Vital Statistics shall be the superintendent of registration of vital statistics as supervised by said board.

"And said board is authorized to require reports and information (at such times and of such facts and generally of such nature and extent as its by-laws or rules may provide) from all public dispensaries, hospitals, asylums, infirmaries, prisons, and schools,

and from the managers, principals, and officers thereof, and from all other public institutions, their officers and managers, and from the proprietors, managers, lessees, and occupants of all places of public resort in the State.

“Said board may, from time to time, engage suitable persons to render sanitary service or to make or supervise practical and scientific investigations and examinations requiring expert skill, and to prepare plans and reports relative thereto.

“It shall be the duty of said board, on or before the first Monday of December in each year, to make a report in writing to the Governor of this State upon the sanitary condition and prospects of the State, and such report shall set forth the action of the said board and of its officers and agents, and the names thereof, for the past year, and may contain other useful information pertinent to the objects for which it was created, and shall suggest any further legislative action or precaution, deemed proper for the better protection of life and health.”

The secretary may add that the preparation of this annual report is in itself a labor of no slight moment. In order to convey all the information which the law requires, it is necessary to publish a volume of very considerable size, which requires the most careful supervision in its issue, and an amount of time must be devoted to that matter which interferes very considerably with the executive duties of the board and its secretary.

Now, in what way may the State Board of Health give local boards of health aid and assistance? In the first place, by indicating to borough councils the exact manner in which they should establish such boards. There have been frequent instances—and I will name one—in which trouble has originated to boards of health because the borough council did not understand the precise way in which the board should be appointed. For instance,—

One of the specifications of the law is that each member of the board shall be appointed for a particular district of the borough. If that point is neglected,—if the borough council simply appoints the five members without specifying that each member shall be for a particular district of that borough, there is a danger that at some critical time the board may be interfered with. Just this occurred in the case of the Board of Health of Meadville. After the terrific flood, which was accompanied by even more terrific fire, in the Titusville and Oil City region, Meadville being also visited by the flood, that board was doing excellent work in

removing the *débris* and cleaning up the town ; when its members wakened up one morning to find that the city council had declared that the board was illegal,—that it no longer existed,—and that the city council had itself assumed its functions. And it was on the ground that this point had been neglected. The board had simply been appointed as a board, without designating that each member should represent a special district. It is not enough that each member in point of fact is selected from a special district, but that district must be specifically designated. The State Board of Health took particular pains to notify the president of every council, and every council, in the State that particular care must be taken to comply exactly with the provisions of the law in appointing its board.

In the next place, the State Board of Health can and will inform, and is at the present time informing, the local boards as to their duties and powers. It was for that especial purpose that it took upon itself the calling of this conference,—and it desires to say that it considers this the most important step which it has yet taken in giving what help it can render to local boards.

There are a number of other points on which I would like to speak, many of which have been suggested by the delegates. It is perhaps a little too late to enter upon an enlargement of them at the present moment, but if time should be allowed me at the next session to answer any of those questions, I would be most happy to do so. I thank you, gentlemen, for your patience and kindness, in giving me such careful attention.

MINUTES OF THE CONVENTION.

The Convention was called under the auspices of the State Board and Local Boards of Health, and assembled in the Supreme Court Room, Harrisburg, January 26, 1894, at 10 A.M., and was called to order by His Excellency, Governor Pattison, as President. Hon. Thomas P. Merritt, Ex-Mayor of Reading, Hon. S. T. Davis, President of the State Board of Health, Major Moses Veale, Health Officer of Philadelphia, and Crosby Gray, Esq., Department of Public Safety, Pittsburg, acted as Vice-Presidents.

On motion, Professor William B. Atkinson, M.D., of Philadelphia, was chosen as Secretary.

Prayer was offered by the Right Rev. Thomas McGovern, D.D., Bishop of Harrisburg.

His Excellency, Governor Pattison, opened the proceedings as follows :

GOVERNOR PATTISON'S ADDRESS.

GENTLEMEN OF THE STATE SANITARY CONFERENCE:—Many efforts were made in Pennsylvania during the last twenty-five years, by legislation, to bring about a State organization. It was only in the year 1885 that legislation was effected by which the State Board of Health was organized. The State Board of Health, by the terms of the act, which, under our Constitution, in its title must clearly set out the purpose of the law, was enacted "to establish a State Board of Health for the better protection of life and health, and to prevent the spread of contagious and infectious diseases in this Commonwealth."

Immediately upon the enactment of the law, the Board was constituted. The result of the organization was felt at once. The State was put into communication, indirectly through the head of the State, with the various local communities, so that where there was epidemic or contagious disease of any character, communication was immediately sent to the State Board of Health, and an officer detailed through that Board to the community affected.

During an administration, since its organization in 1885, of some six years, as the executive officer of the Commonwealth, I have had frequent communications of this character, and through the agency of the Board we have been enabled to relieve the districts affected.

The conditions which followed immediately the great calamity at Johnstown were greatly relieved by the prompt and effective action of the State Board of Health. So wherever local epidemics of typhoid fever, small-pox, diphtheria, or scarlet fever have appeared, the effective action of the Board has been manifest.

When the State was threatened with the invasion of cholera, the prompt action of the State Board of Health at once arrested the attention of the people of the Commonwealth to the importance of the observance of all sanitary precautions. By proclamation and public notices the homes of our citizens were put in order and measures taken to meet the dreaded invader.

But the State Board of Health has been very much embarrassed by the failure of organization throughout the local communities of the Commonwealth. It is very singular that in the

closing years of the nineteenth century, after the great benefits of sanitation have been conceded, we should meet with opposition to the enforcement of sanitary regulations; yet the State Board of Health has been confronted with such sentiment in our great, intelligent Commonwealth.

It was really essential that more than the Act of 1885 should be adopted. That was simply organizing the head of the Commonwealth into a system, without the detailed organization of the body; and when the Legislature of 1893 assembled, I was very much gratified to observe that a thorough and complete health law, in the shape of the organization of the various communities into health boards, was about to be effected through legislation. Fortunately, I think, all of those interested in sanitary conditions can congratulate themselves upon having effected a better organization of the Commonwealth into borough health boards.

I cannot give you at this time the exact figures, but there are certainly more than 700 boroughs of this Commonwealth; and I am informed by your secretary that more than 200 have organized local boards of health.

Dr. Lee: I will have to help you some; there are at the present time over 400.

The Governor: I congratulate you upon having 400 organizations all in direct communication with the State Board of Health. With five members in each borough, an efficient brigade of 2000 sanitary workers having the sympathy and co-operation of the community with them to assist the State Board in furthering the work in which it is engaged. So I believe I am justified in saying that the recent legislation has been of much benefit to the people of Pennsylvania in perfecting the legislation of 1885.

In mythology Hygeia was claimed as the daughter of Esculapius. But, without questioning the accuracy of mythology, yet I believe she would be more appropriately styled the mother of Esculapius. (Laughter.) Indeed, I do not believe that the practice of medicine was effective until it was administered by sanitary or preventive measures, to enable it to effect the best results. So that, as far as we know, sanitary conditions must have preceded the application of medicine. Now, in saying this, I hope I am not understood as objecting to the medical profession in any way, or in reflecting upon their antiquity, or their precedence. (Renewed laughter.)

The sanitary condition in any community, wherever improve-

ment has been attempted, has been followed with wonderful success. I remember a year or so ago, a distinguished physician from Western Pennsylvania, a member of the State Board of Health, a gentleman present here now, Dr. McClelland, who can corroborate what I am stating to you. He was in Berlin when there was an epidemic of typhoid fever. He said to me that almost alone by the application of sanitary measures they were able in that city to stamp out that dreaded fever; and that by the results accomplished in the application of sanitation to the conditions which existed at that time, they were successful in bringing about in Berlin a healthy condition of the community. In the city of Philadelphia, wherever has occurred an epidemic of any contagious disease, an observer of the weekly reports cannot fail to note the happy results which follow the efforts of the local Board of Health.

There have been communities within the last sixty days affected by diphtheria and scarlet fever, where the State Board of Health, by immediately taking hold, have succeeded in arresting their progress.

Only yesterday, under the heading in a daily newspaper of "Derelict Township Officials. Investigation of neglect of sanitary precaution in a case of malignant diphtheria," I observed the following: "Secretary Hunt, of the New Jersey State Board of Health, has been investigating recent deaths from malignant diphtheria in the family of Michael Ball, at Chiselhurst, Camden County, and the dereliction of the township authorities in not adopting proper precautions to prevent the disease from spreading.

"A daughter of Ball's, while at service in a Philadelphia family, contracted diphtheria, and was advised to go to a hospital. Instead of doing so she went to her father's home at Chiselhurst. She ultimately recovered, but communicated the disease, which was of a malignant type, to a brother and a sister, both of whom died.

"Dr. J. I. Hoverder, the attending physician, notified the local Board of Health, which is the township committee, of the contagious nature of the disease, but no precautions against its spread were taken. County Physician Izard was notified, and he directed that the funerals of the victims should be held in private. This advice was also disregarded, and many persons, including a number of children, visited the Ball house and were exposed to the contagion.

“Dr. Hunt, of the State Board of Health, censured the township authorities, and advised that, in future, if the proper authorities failed in their duty in cases of contagious disease, word should be telegraphed to the State Board of Health, and immediate steps would be taken to enforce the law.”

This only gives emphasis to what has already been said as to the importance of health organizations. I would go further in the enforcement of this law; I would add to it severe penalties. Only recently, in this very community in which we are now assembled, a person died from the effects of a contagious disease. Men and women were in the room in which the body of the diphtheritic patient was lying, and went from its presence out into the world carrying the germs of the disease with them. Without enforcement of wholesome provisions the dissemination of disease throughout a community is assisted. It is only an illustration of the danger to which every community is subject.

Another recent article, published with reference to the sanitary laws, is taken from a New York paper, a publication of a day or so ago, entitled “Defences Against Cholera.” The article itself reads,—

“An outbreak of Asiatic cholera in Brazil was reported last August, and as the Marine Hospital Bureau was then taking all possible precaution for the exclusion of the disease from this country, a sanitary inspector, Dr. Cleary, was sent to Rio de Janeiro. In a report dated on the 6th ult., he writes as follows: ‘At the end of August an immigrant ship from Italy brought with her the cholera, which broke out in less than a dozen cases in São Paulo, a city four hours’ ride by rail from the sea-coast and 2900 feet above the sea-level. All the immigrants were at once isolated from the rest of the population, and the sick from the well; disinfection of clothing, baggage, persons, and everything was rigorously performed daily, and the quarantine continued for fifteen days after the last case was well. The ship was at once sent back, as well as another one which soon after arrived with cholera on board. This last was not allowed to communicate with the shore, but was sent off under escort of a vessel-of war. By these means the spread of the disease was prevented, and since that time not even a case of so-called cholérine has been reported.’

“It may be recalled that on one of the ships sent back about 150 passengers died of cholera before she arrived at Naples. The

fact that the disease, after appearing in a city more than 100 miles from the coast, was so quickly suppressed, shows that the sanitary administration must have been very good. The South American countries have greatly improved their defences against cholera since the admission of the disease from Italy a few years ago gave them their first experience with this plague, at a cost of 50,000 lives."

So on, possibly, within the observation of every member of this Convention, illustration after illustration might be multiplied. But it only the more demonstrates the importance and wisdom of this assembly. If greater enthusiasm can be given to the Board and to the committees in the great work of sanitation, much will have been accomplished.

I take great pleasure, in conclusion, in repeating that I welcome you to this annual conference. I am sure it is the beginning of a work in the State of Pennsylvania, which must ultimately contribute to the welfare of all the people; believing that "an ounce of prevention is better than a pound of cure." (Loud applause long continued.)

Mr. M. Lippert, Vice-President of the Board of Health of Phoenixville, read a paper on "The Authority and Mission of the Local Boards of Health."

The Secretary read the following communication :

HARRISBURG, January 26, 1894.

HON. R. E. PATTISON, Governor of Pennsylvania.

My Dear Sir:—

I trust you, in your official capacity as President of the Sanitary Convention, will call the attention of the Convention to the necessity of extending the Act of Assembly, creating boards of health in cities, towns, and boroughs, Laws of Pennsylvania, 1893, p. 44, to the townships of the Commonwealth. I attempted to engraft an amendment upon the text, but failed. It is a necessity. Dr. Lee, of the State Board, as Secretary, has expressed himself in sympathy with the movement at a former meeting of the board. Death, in July last, entered my home and took an adopted daughter by diphtheria, brought there from a little country town. Cannot the country as well as the town be helped?

Very respectfully yours,
E. M. TEWKSBURY.

Mr. E. S. Wagoner, Mechanicsburg, moved to refer this to a committee of three to prepare an Act in reference thereto.

Mr. McClelland, Allegheny, moved that a Committee on Legislation be appointed; this was accepted by Mr. Wagoner, the motion was adopted, and the communication referred.

The paper of Mr. Lippert was discussed by Dr. Lee, Mr. Wagoner, Mr. Loughlin, Major Veale, Mr. Weaver, Dr. Riggs, Mr. Newlan, Dr. Koons, Dr. Tweedle, Dr. Dudley, Mr. C. Gray, Mr. Wanner, and others.

Dr. William H. Ford, Philadelphia, read a paper, "The Duties of Local Boards of Health in the Management of Contagious and Infectious Diseases."

Dr. J. H. McClelland, Pittsburg, suggested that the Committee on Legislation be constituted at once.

Mr. E. S. Wagoner moved that this Convention of the State and Local Boards of Health proceed to a permanent organization, and that the Committee on Legislation be instructed to report a plan of organization at a future session.

After discussion by Messrs. Wagoner, Lippert, and McClelland, the motion to appoint a Committee on Permanent Organization was unanimously agreed to, and the subject of legislation was referred to them.

The Convention then adjourned till 2 P.M.

Convention reassembled at 2 P.M.

Howard Murphy, C.E., Engineer Member of the State Board, read a paper, "Sanitary Engineering; or, The Prevention of Preventable Diseases."

Discussed by Messrs. Veale, Gray, Dudley, Ford, Taylor, etc.

Dr. Benjamin Lee, Secretary of the State Board, introduced Dr. John H. Rauch, Chicago, late Secretary of the Illinois State Board.

On motion, Dr. Rauch was invited to a seat upon the platform and to participate in the proceedings.

Dr. S. T. Davis, President of the State Board, read a paper, "Sanitary Sins of Omission and Commission in our Common Schools."

Discussed by Messrs. Wagoner, McCormack, Martenis, Fleisher, Wanner, Dudley, Whitcomb, Lippert, Groff, J. G. Shoemaker, and Rigg.

Major M. Veale, Health Officer of Philadelphia, read a paper, "Powers and Possibilities of Local Boards."

Discussed by Messrs. Kern, Lee, Swisher, Spaulding, Lippert, Rigg, Wilson, Miles, Frantz, and Allen.

Dr. Benjamin Lee read a paper, "How the State Board and Local Boards of Health may be Mutually Helpful."

On motion of Dr. J. B. Tweedle, seconded by A. F. Bronson, a vote of thanks was tendered to the Governor for the assistance he had rendered in the creation of the local boards, also in calling this Convention, as well as in the origination of the State Board.

The question was put by the secretary, and adopted by a rising vote.

The Convention then adjourned till 7.30 P.M.

Convention reassembled at 7.30 P.M.

Dr. J. H. McClelland, a member of the State Board, read a paper, "To what Extent should Compensation be made for Losses Sustained to Protect Communities in Cases of Contagious Diseases."

Dr. Joseph F. Edwards, a member of the State Board, read a paper, "The Local Board as a Sanitary Instructor," illustrated by stereopticon views.

Mr. Wagoner offered the following :

Resolved, That the State Board of Health be and are hereby requested to promptly publish such a number of copies of the paper entitled, "The Powers and Possibilities of Local Boards," as delivered by Major Veale, as will supply the local and other boards of health throughout the State.

An amendment was offered to include all the papers read at the meeting, which was accepted by the mover.

Dr. Lee explained that it was impossible to publish any of the papers under a year, and he could not say how many could be published.

The resolution was then adopted.

The Convention then adjourned till Saturday, at 9.30 A.M.

The Governor gave a reception at the Executive Mansion to the members of the Convention.

JANUARY 27.—Convention reassembled at 9.30 A.M.

Prayer was offered by Rev. Dr. Dimmick, pastor of Grace M. E. Church, as follows :

Our Father in heaven, we come into Thy presence with thanksgiving, blessing Thee for Thy remembrance of us in spiritual and temporal things. We beseech of Thee to grant unto us more that help and strength by which we live. We rejoice that

our life flows with Thy life; that our Saviour promised that we might have life, and that we might have it more abundantly. Do Thou give Thy blessing, and direct by Thine own presence this Convention. As these men are here to consider the health and physical well-being of the people of this Commonwealth, may they realize that we are joined to the Master in service to humanity, for He healed men of their diseases, and has promised that those who follow after Him should do greater works than He did. May they come to realize the divinity of their mission. Oh, Thou who art all truth, do Thou bless them as they endeavor to know the truth which God has stored away in Nature, and may they aid men in finding the secret of bringing our lives into harmony with Nature's laws. And we pray that as we come to know the truth of Nature more, we may also desire to know the spiritual truth which has power to make man every whit whole. May these men, whom Thou hast chosen as leaders among their fellows, enter into the divine life, that they may find food for their souls, light for their darkness, and strength for weakness. May the hours of this day be spent as in Thy presence, and may we keep the fear of the Lord always before us. We ask it in Jesus's name. AMEN.

Mr. E. S. Wagoner, chairman of the Committee on Permanent Organization, offered the report, as follows:

BY-LAWS OF THE STATE ASSOCIATED HEALTH AUTHORITIES
OF PENNSYLVANIA.

Name.—This Association shall be known as "The State Associated Health Authorities of Pennsylvania."

Object.—The object of this Association shall be the promotion of public health and uniformity of sanitary administration in the State of Pennsylvania.

Membership.—The members shall consist of those who are connected officially with the bureaus and boards of health of this Commonwealth.

Honorary members may be elected from those who have rendered distinguished service to the cause of sanitation.

Officers.—The Governor of this Commonwealth shall be *ex officio* the president of the Association.

There shall be a first vice-president, a second vice-president, and a third vice-president, who shall be elected annually from the members of the Association.

There shall be a secretary and a treasurer, who shall also be elected annually from the members of the Association.

The treasurer shall be required to give a bond from some surety company to the amount of \$5000, the premium on this to be paid by the Association.

Standing Committees.—There shall be an Executive Committee, to consist of seven members. The president and secretary shall be *ex-officio* members of this committee.

This committee shall have general charge of the affairs of the Association, and perform such special duties as may be assigned to it.

There shall be a Legislative Committee to consist of five members.

There shall be a Committee on Publication, consisting of five members, to whom shall be referred all matters for publication. This committee shall also prepare, from time to time, such addresses to the public as may tend to promote the cause of sanitation.

The secretary of the State Board of Health and the secretary of the Association shall be *ex-officio* members of this committee.

Appointment of Committees.—All members of committees shall be appointed annually by the president.

Referees.—There shall be appointed by the president for each meeting referees on special subjects, to whom shall be referred all questions pertaining to such subjects.

Meetings.—The Association shall meet annually at the capital of the State, at such time as shall be determined by the Executive Committee.

General Fund.—Each board or bureau of health represented in this Association shall contribute annually the sum of five dollars towards a general fund for the purpose of publishing and distributing the proceedings of the Association, and for the incidental expenses of the meetings.

This contribution shall be remitted to the treasurer of the Association on or before the first day of March of each and every year.

On motion it was read by the secretary, and adopted by sections. After the adoption of an amendment to the section on publication committee by inserting, "The secretary of the State Board of Health, and the secretary of the Association shall be *ex-officio* members of this committee," the by-laws were adopted as a whole.

The vice-presidents, as reported, were then elected.

Dr. William B. Atkinson, Philadelphia, was nominated as secretary.

On motion of Mr. E. S. Wagoner, he was elected by a rising vote.

After several nominations for treasurer, and declinations, Dr. Jesse C. Green, West Chester, was nominated and elected.

On motion of Dr. Swisher, Darby, the treasurer was required to give a bond from some surety company, to the amount of \$5000, to the Association, the premium for the same to be paid by this Association.

Dr. Crosby Gray, Pittsburg, read a paper, "A Few Needed Reforms in the Health Service."

Dr. P. Dudley, member of the State Board, read a paper on "Local Sanitary Association an aid to the Local Health Boards."

Mr. A. M. Beitler, Director of the Department of Public Safety, Philadelphia, read a paper, "The Ounce of Prevention."

On motion, a vote of thanks was tendered Dr. Joseph F. Edwards for his efforts in procuring the excellent attendance at this Convention.

On motion, the secretary was instructed to prepare a revised list of the boards represented, and the delegates present.

Mr. M. G. Lippert offered the following, which was adopted :

Resolved, That the Committee on Publication shall, as soon as possible, cause to be printed a sufficient number of copies of the By-Laws of this Association, and shall, through the secretary, distribute them to the boards and bureaus represented in the Association, and the Committee shall, also through the secretary, inform, as soon as possible hereafter, all boards of health in the State, not represented in this Association, of the formation of a permanent organization of this Association, accompanying such information by a copy of the by-laws and a formal invitation to such boards to join the Association.

He also offered the following, which, after due consideration, was adopted :

WHEREAS, In the opinion of this Convention of representatives of the health authorities of this Commonwealth, it is of great importance to enlist the interest of the press, the schools, and the medical profession, throughout the State, in our great task of improving the sanitary condition of the communities we represent, and to secure their co-operation with the local Boards of

Health by exerting their influence upon public opinion in behalf of public sanitation and sanitary supervision, therefore be it

Resolved, That the Committee on Publication be instructed to prepare and circulate suitable addresses to the press, the medical profession, and the State superintendent of public instruction, as well as the local school boards and superintendents throughout the State, for the purpose set forth in the preamble to these resolutions.

On motion of Dr. Lee, Dr. John H. Rauch, of Chicago, was elected the first honorary member of the Association.

Dr. Rauch acknowledged the courtesy and dwelt upon certain points to be commended in the health laws of the State.

Mr. W. W. Frantz offered the following :

Resolved, That we earnestly request the Legislative Committee to draft an amendment to the Act of May 11, 1893, which shall give to the local boards of health control of all moneys received by them.

After some discussion, it was laid on the table.

Mr. Lippert, having asked of Director Beitler the proper construction of a point in the Act relating to the secretary being a member of a local board, Mr. Beitler declined to give an opinion without a careful examination of the law. The matter was discussed at some length, but no decision was arrived at.

The president announced the committees as follows :

Publication.—M. G. Lippert, Phoenixville, Dr. W. H. Ford, Philadelphia, James M. Harlow, Edgewood, William B. Atkinson, Secretary of the Association, Benjamin Lee, Secretary of the State Board.

Executive Committee.—Dr. Lee, S. V. Wilson, Clearfield, Crosby Gray, Pittsburg, Dr. J. K. Bentley, Scranton, Dr. A. H. Halberstadt, Pottsville, G. W. Blaine, North East, Dr. C. J. Hamnett, Homestead.

The president and secretary *ex officio*.

Legislative Committee.—E. S. Wagoner, Mechanicsburg, A. M. Beitler, Philadelphia, C. P. Weaver, Dr. A. H. Strickler, J. A. McLaughlin, Allegheny.

On motion of Dr. G. G. Groff it was

Resolved, That it is the sense of this Convention that all boards of health in this Commonwealth should do all in their power to prevent the pollution of the inland waters of the State.

A motion by Dr. Dudley that the Secretary of the State

Board of Health procure from the Attorney-General an opinion as to the status of secretaries of local boards was laid on the table after Dr. Lee had announced that it was plain and not necessary, and he did not regard such action as wise.

On motion of Dr. Dudley, Dr. Walter Wyman, Supervising Surgeon-General of the Marine Hospital Service, was elected an honorary member of the Association.

The Association then on motion adjourned *sine die*.

WILLIAM B. ATKINSON,
Secretary.

List of Delegates Officially Accredited to the Convention.

- 1 Aldridge, J. S. South Easton Board
- 2 Allen, W. E., M.D. Health officer of Scranton
- 3 Armatage, T. L., M.D. Lilly Board
- 4 Bailey, D. L., M.D. Carbondale Board
- 5 Bair, Howard E. Hanover Board
- 6 Barclay, J. J. Bedford Board
- 7 Barnett, C. E. New Bloomfield Board
- 8 Barr, A. R. Lancaster Board
- 9 Bastian, John, Jr. Coatesville Board
- 10 Beinhower, Adam Steelton Board
- 11 Beitler, A. M. Director of Public Safety, Philadelphia
- 12 Bentley, J. K., M.D. President, Scranton Board
- 13 Bevan, Benjamin, M.D. President, West Pittston Board
- 14 Blaine, G. W. North-East Board
- 15 Boardman, Walter, M.D. Health commissioner, Lancaster
- 16 Boenning, Henry C., M.D. Quarantine physician, Port of Phila.
- 17 Boker, John E. President, Shippensburg Board
- 18 Bolenius, R. M., M.D. Lancaster Board
- 19 Book, Dr. Newville Board
- 20 Bouse, John A., M.D. Health officer of Chambersburg
- 21 Bower, H. R. Berwick Board
- 22 Bowman, John F., M.D. Millersburg Board
- 23 Bradley, Charles, M.D. Norristown Board
- 24 Bremerman, L. T., M.D. Downingtown Board
- 25 Brenholtz, W. S., M.D. Health officer of Columbia
- 26 Bressler, H. T. Tower City Board
- 27 Breth, Henry President, Mahaffey Board
- 28 Brinley, John H. Birdsboro Board
- 29 Bronson, A. F., M.D. President, Girardville Board
- 30 Brown, Thomas J. Mount Joy Board
- 31 Brumbaugh, A. B., M.D. Huntingdon Board
- 32 Bunnell, L. I. Health officer of Carbondale

The Annals of Hygiene—231

| | | |
|----|----------------------------------|-------------------------------------|
| 33 | Buss, C. D., M.D. | President, Bradford Board |
| 34 | Coble, J. W., M.D. | Health officer of Tamaqua |
| 35 | Comrey, Andrew | Health officer of Mahanoy City |
| 36 | Coughlin, D. O. | Luzerne Board |
| 37 | Dearborn, E. E. | McKeesport Board |
| 38 | Denton, George | Secretary, Chambersburg Board |
| 39 | Dickson, Dr. | Secretary, Gettysburg Board |
| 40 | Dingee, A. H. | Philadelphia Board |
| 41 | Diven, S. L., M.D. | Secretary, Carlisle Board |
| 42 | Douden, A. | Millersburg Board |
| 43 | Dunwiddie, J. W., M.D. | Phillipsburg Board |
| 44 | Edwards, Lewis, M.D. | President, Edwardsville Board |
| 45 | Fine, L. M. | Secretary, Easton Board |
| 46 | Fishel, H. W., M.D. | Secretary, Dillsburg Board |
| 47 | Fleisher, Daniel | Troy Board |
| 48 | Flint, Rev. John | Spring City Board |
| 49 | Ford, Wm. H., M.D. | President, Philadelphia Board |
| 50 | Fowzer, R. B. | Butler Board |
| 51 | Frantz, W. W. | Secretary, Waynesboro |
| 52 | Fruit, R. B., M.D. | President, Hazleton Board |
| 53 | Geesaman, Wm. M. | Secretary, Shippensburg Board |
| 54 | Giles, George | Carbondale Board |
| 55 | Gillespie, Dr. | Oxford Board |
| 56 | Good, J. L. | Philadelphia Board |
| 57 | Graff, J. H., M.D. | Dillsburg Board |
| 58 | Gray, Crosby | Department Public Safety, Pittsburg |
| 59 | Green, Jesse C., M.D. | West Chester Board |
| 60 | Gregory, E. D. | Girardville Board |
| 61 | Gregory, G. W., M.D. | Troy Board |
| 62 | Gregory, W. E. | Stroudsburg Board |
| 63 | Haines, W. H., M.D., | Thompsontown Board |
| 64 | Haines, E. S., M.D. | Rutledge Board |
| 65 | Halbach, Jacob | Secretary, Lancaster Board |
| 66 | Halberstadt, A. H., M.D. | Pottsville Board |
| 67 | Hamnett, C. J., M.D. | President, Homestead Board |
| 68 | Harlow, James H., C. E. | President, Edgewood Board |
| 69 | Haywood, Wm. | Conshohocken Board |
| 70 | Hendrix, J. M. | Secretary, Stewartstown Board |
| 71 | Hersh, Alfred C. | Lebanon Board |
| 72 | Hill, F. K. | Secretary, Sunbury Board |
| 73 | Hirst, A. A. | Secretary, Philadelphia Board |
| 74 | Hocker, Martin | Steelton Board |
| 75 | Hoffman, David R. | Steelton Board |
| 76 | Holstein, Hiram M. | Secretary, Lebanon Board |
| 77 | Hoyt, A. V. | Phillipsburg Board |
| 78 | Hunt, J. S., M.D. | President, Easton Board |
| 79 | Johnston, A. R., M.D. | New Bloomfield Board |
| 80 | Kauffman, J. B. | New Cumberland Board |
| 81 | Kern, Amandus | Secretary, Fleetwood Board |

232—The Annals of Hygiene

| | | |
|-----|-----------------------------------|------------------------------------|
| 82 | Kelly, J. M. | Manor Station Board |
| 83 | Keyser, P. D., M.D. | Philadelphia Board |
| 84 | Kline, D. Frank, M.D. | Lancaster Board |
| 85 | Knapp, Charles P., M.D. | Chairman, Wyoming Board |
| 86 | Koons, P. R., M.D. | Mechanicsburg Board |
| 87 | La Ross, W. A., M.D. | McDonald Board |
| 88 | Lebo, D. F. | Secretary, Williamstown Board |
| 89 | Lee, Benjamin, M.D. | State Quarantine Board |
| 90 | Leffard, W. S. | Warren Board |
| 91 | Lehman, W. F., M.D. | South Chester Board |
| 92 | Lentz, L. R., M.D. | President, Fleetwood Board |
| 93 | Levan, J. H. | Minersville Board |
| 94 | Levengood, W. Y., M.D. | Bellwood Board |
| 95 | Lindsey, Jas. A. | Bradford Board |
| 96 | Lineaweaver, J. K., M.D. | President, Columbia Board |
| 97 | Linebaugh, H. W., M.D. | New Cumberland Board |
| 98 | Lippert, M. G. | Vice-President, Phoenixville Board |
| 99 | Loughry, C. H. | Secretary, Coopersdale Board |
| 100 | Luther, W. S. | Secretary, DuBois Board |
| 101 | Lytle, S. F., M.D. | Phillipsburg Board |
| 102 | Mann, C. H., M.D. | President, Bridgeport Board |
| 103 | Marks, John | Secretary, Tremont Board |
| 104 | Martenis, J. Warren | Secretary, South Bethlehem Board |
| 105 | Martin, J. R., M.D. | Vice-President, Stewartstown Board |
| 106 | McCallum, Malcolm | Health officer of Renovo |
| 107 | McCombs, William, M.D. | Hazleton Board |
| 108 | McCormick, D. R., M.D. | Lancaster Board |
| 109 | McLanahan, Johnston, M.D. | President, Chambersburg Board |
| 110 | McLaughlin, J. A. | Supt., Bureau of Health, Allegheny |
| 111 | Meagher, D. J. | Secretary, Bridgeport Board |
| 112 | Merritt, Hon. Thomas P. | Reading Board |
| 113 | Miles, F. F. | Shenandoah Board |
| 114 | Miles, J. Hunter, M.D. | Milton Board |
| 115 | Miller, J. M. | Shiremanstown Board |
| 116 | Moore, Capt. J. A. | Camp Hill Board |
| 117 | Newlin, H. S., M.D. | McKeesport Board |
| 118 | Norris, L. C. | Curwensville Board |
| 119 | O'Neal, J. W. C., M.D. | President, Gettysburg Board |
| 120 | Orlady, Geo. B. | Huntingdon Board |
| 121 | Orris, H. O., M.D. | Newport Board |
| 122 | Paine, W. A., M.D. | Scranton Board |
| 123 | Parke, T. E., M.D. | Downington Board |
| 124 | Patton, Chas. E. | Curwensville Board |
| 125 | Peffer, Ambrose, M.D. | Dillsburg Board |
| 126 | Peters, J. Mark, M.D. | Secretary, Steelton Board |
| 127 | Phillips, Isaiah | West Elizabeth Board |
| 128 | Pierce, A. M., M.D. | West Elizabeth Board |
| 129 | Pursell, Howard, M.D. | President, Bristol Board |
| 130 | Putt, A. H. | Secretary, Halifax Board |

- 131 Reber, W. W., M.D. Lehighton Board
- 132 Reil, I. V., M.D. Coatesville Board
- 133 Reilly, Richard Lancaster Board
- 134 Reynolds, W. B., M.D. Newville Board
- 135 Rhoads, M. A., M.D. President, Reading Board
- 136 Richter, A., M.D. Health officer of Williamsport
- 137 Rigg, J. E., M.D. Wilkinsburg Board
- 138 Rimer, J. T., M.D. Clarion Board
- 139 Ringer, J. H., M.D. Jeannette Board
- 140 Ritter, F. O., M.D. Secretary, Slatington Board
- 141 Rockwell, L. D., M.D. President, Union City Board
- 142 Roebuck, P. J., M.D. Litiz Board
- 143 Rupp, S. S. Shiremanstown Board
- 144 Russell, R. J., M.D. Hanover Board
- 145 Rutledge, A. T., M.D. Blairsville Board
- 146 Salade, L. A., M.D. Catasauqua Board
- 147 Saul, Charles H., M.D. President, Steelton Board
- 148 Schaefer, Alfred South Easton Board
- 149 Schwartz, Reuben, M.D. Lebanon Board
- 150 Scott, S. H., M.D. Coatesville Board
- 151 Sechrist, H. Q. Dallastown Board
- 152 Shaw, Joseph Norristown Board
- 153 Sheetz, J. L., M.D. New Oxford Board
- 154 Shoemaker, B. M.D. President, Brownsville Town Council
- 155 Shoemaker, J. G., M.D. Phoenixville Board
- 156 Shope, J. W., M.D. Halifax Board
- 157 Shope, A. L., M.D. Secretary, Camp Hill Board
- 158 Shultz, Rev. C. B. President, Lititz Board
- 159 Slifer, H. F., M.D. Secretary, North Wales Board
- 160 Sloan, J. A. Health officer of Johnstown
- 161 Smith, George Dillsburg Board
- 162 Snyder, H. P. President, Connellsville Board
- 163 Spaulding, S. C., M.D. Shenandoah Board
- 164 Steckel, L. D. Lykens Board
- 165 Steigerwalt, M. F. President, Lancaster Board
- 166 Stein, George W., M.D. Royersford Board
- 167 Stephens, W. R., M.D. Wilkinsburg Board
- 168 Stites, G. M., M.D. President, Williamstown Board
- 169 Stone, George S., M.D. President, New Freedom Board
- 170 Straub, E. L., M.D. Minersville, Schuylkill County
- 171 Strickler, Hon. A. H., M.D. President, Waynesboro Board
- 172 Sullivan, J. C., M.D. DuBois Board
- 173 Suloff, Samuel A., M.D. Patterson Board
- 174 Swisher, David F., M.D. Darby Board
- 175 Taylor, Z., Eaton Board
- 176 Thomas, Jesse O. Secretary, Bristol Board
- 177 Tilton, H. C. Health officer of Easton
- 178 Tonnelle, Theo. McKeesport Board
- 179 Tweedle, J. B., M.D. Weatherly Board

234—The Annals of Hygiene

| | | |
|-----|----------------------------------|--------------------------------|
| 180 | Veale, Major Moses | Health officer of Philadelphia |
| 181 | Wagenseller, B. F., M.D. | Selins Grove Board |
| 182 | Wagoner, Ed. S. | Mechanicsburg Board |
| 183 | Wakefield, A. N., M.D. | Johnstown Board |
| 184 | Wallace, A. C. | Secretary McKeesport Board |
| 185 | Walter, John, M.D. | President, Lebanon Board |
| 186 | Wanner, Professor A. | York Board |
| 187 | Ward, Donald M. | Butler Board |
| 188 | Watson, R. B., M.D. | Lock Haven Board |
| 189 | Weaver, C. P. | Secretary, Norristown Board |
| 190 | Weaver, Geo. H. | Secretary, McSherrystown Board |
| 191 | Whitcomb, H. H., M.D. | President, Norristown Board |
| 192 | Wilson, S. V. | Clearfield Board |
| 193 | Wolfe, Samuel S. | Shippensburg Board |
| 194 | Wright, R. L., M.D. | Shamokin Board |
| 195 | Young, W. A. | Millvale Board |
| 196 | Young, W. A. | Bennett Board |
| 197 | Jacob Tippet | HARRISBURG SANITARY COMMITTEE |
| 198 | Amos Fry | |
| 199 | Naudain Fry | |
| 200 | William Daum | |
| 201 | C. A. Miller | |
| 202 | John K. Royal | |
| 203 | L. Kennedy | |
| 204 | Jacob Hess | |
| 205 | C. M. Brown | |
| 206 | J. C. Hutton, M.D. | |

LIST OF BOARDS REPRESENTED.

| | | |
|------------------|-------------------|-------------------|
| 1 Allegheny. | 20 Columbia. | 39 Hazleton. |
| 2 Bedford. | 21 Camp Hill. | 40 Homestead. |
| 3 Bellwood. | 22 Connellsville. | 41 Huntingdon. |
| 4 Bennett. | 23 Conshohocken. | 42 Jeannette. |
| 5 Berwick. | 24 Coopersdale. | 43 Johnstown. |
| 6 Birdsboro. | 25 Curwensville. | 44 Lancaster. |
| 7 Blairsville. | 26 Dallastown. | 45 Lebanon. |
| 8 Bradford. | 27 Darby. | 46 Lehighton. |
| 9 Bridgeport. | 28 Dillsburg. | 47 Lilly. |
| 10 Bristol. | 29 Downingtown. | 48 Litiz. |
| 11 Brownsville. | 30 DuBois. | 49 Lock Haven. |
| 12 Butler. | 31 Easton. | 50 Luzerne. |
| 13 Carbondale. | 32 Edgewood. | 51 Lykens. |
| 14 Carlisle. | 33 Edwardsville. | 52 Mahaffey. |
| 15 Catasauqua. | 34 Fleetwood. | 53 Mahanoy City. |
| 16 Chambersburg. | 35 Gettysburg. | 54 Manor Station. |
| 17 Clarion. | 36 Girardville. | 55 McDonald. |
| 18 Clearfield. | 37 Halifax. | 56 McKeesport. |
| 19 Coatesville. | 38 Hanover. | 57 McSherrystown. |

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|--------------------|--------------------------|---------------------|
| 58 Mechanicsburg. | 78 Pittsburg. | 98 Stewartstown. |
| 59 Millersburg. | 79 Port of Philadelphia. | 99 Stroudsburg. |
| 60 Millvale. | 80 Pottsville. | 100 Sunbury. |
| 61 Milton. | 81 Reading. | 101 Tamaqua. |
| 62 Minersville. | 82 Renovo. | 102 Thompsontown. |
| 63 Mount Joy. | 83 Royersford. | 103 Tower City. |
| 64 New Bloomfield. | 84 Rutledge. | 104 Tremont. |
| 65 New Cumberland. | 85 Scranton. | 105 Troy. |
| 66 New Freedom. | 86 Selins Grove. | 106 Union City. |
| 67 New Oxford. | 87 Shamokin. | 107 Warren. |
| 68 Newport. | 88 Shenandoah. | 108 Waynesboro. |
| 69 Newville. | 89 Shiremanstown. | 109 Weatherly. |
| 70 Norristown. | 90 Shippensburg. | 110 West Chester. |
| 71 North East. | 91 Slatington. | 111 West Elizabeth. |
| 72 North Wales. | 92 South Bethlehem. | 112 West Pittston. |
| 73 Oxford. | 93 South Chester. | 113 Wilkinsburg. |
| 74 Patterson. | 94 South Easton. | 114 Williamsport. |
| 75 Phillipsburg. | 95 Spring City. | 115 Williamstown. |
| 76 Phoenixville. | 96 State Quarantine. | 116 Wyoming. |
| 77 Philadelphia. | 97 Steelton. | 117 York. |

LIST OF BOARDS REPRESENTED WITH DELEGATES FROM EACH.

| | |
|-------------------------|-----------------------------|
| 1 ALLEGHENY, | 12 BUTLER, |
| 1 J. A. McLaughlin. | 15 R. B. Fowzer. |
| 2 BEDFORD, | 16 Donald M. Ward. |
| 2 J. J. Barclay. | 13 CAMP HILL, |
| 3 BELLWOOD, | 17 Capt. J. A. Moore. |
| 3 W. Y. Levengood, M.D. | 18 A. L. Shope, M.D. |
| 4 BENNETT, | 14 CARBONDALE, |
| 4 W. A. Young. | 19 D. L. Bailey, M.D. |
| 5 BERWICK, | 20 George Giles. |
| 5 H. R. Bower. | 21 L. I. Bunnell. |
| 6 BIRDSBORO, | 15 CARLISLE, |
| 6 John H. Brinley. | 22 S. L. Diven, M.D. |
| 7 BLAIRSVILLE, | 16 CATASAUQUA, |
| 7 A. T. Rutledge, M.D. | 23 L. A. Salade, M.D. |
| 8 BRADFORD, | 17 CHAMBERSBURG, |
| 8 C. D. Buss, M.D. | 24 Johnston McLanahan, M.D. |
| 9 Jas. A. Lindsey. | 25 John A. Bouse, M.D. |
| 9 BRIDGEPORT, | 26 George Denton. |
| 10 C. H. Mann, M.D. | 18 CLARION, |
| 11 D. J. Meagher. | 27 J. T. Rimer, M.D. |
| 10 BRISTOL, | 19 CLEARFIELD, |
| 12 Howard Pursell, M.D. | 28 S. V. Wilson. |
| 13 Jesse O. Thomas. | 20 COATESVILLE, |
| 11 BROWNSVILLE, | 29 S. H. Scott, M.D. |
| 14 B. Shoemaker, M.D. | 30 I. V. Reil, M.D. |
| | 31 John Bastian, Jr. |

236—The Annals of Hygiene

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|---------------------------------|--------------------------|
| 21 COLUMBIA, | 38 HANOVER, |
| 32 J. K. Lineaweaver, M.D. | 63 R. J. Russell, M.D. |
| 33 W. S. Brenholtz, M.D. | 64 Howard E. Bair. |
| 22 CONNELLSVILLE, | 39 HAZLETON, |
| 34 H. P. Snyder. | 65 R. B. Fruit, M.D. |
| 23 CONSHOHOCKEN, | 66 Wm. McCombs, M.D. |
| 35 Wm. Haywood. | 40 HOMESTEAD, |
| 24 COOPERSDALE, | 67 C. J. Hammett, M.D. |
| 36 C. H. Loughry. | 41 HUNTINGDON, |
| 25 CURWENSVILLE, | 68 A. B. Brumbaugh, M.D. |
| 37 L. C. Norris. | 69 George B. Orlady. |
| 38 Chas. E. Patton (alternate). | 42 JEANNETTE, |
| 26 DALLASTOWN, | 70 J. H. Ringer, M.D. |
| 39 H. Q. Sechrist. | 43 JOHNSTOWN, |
| 27 DARBY, | 71 J. A. Sloan. |
| 40 David F. Swisher, M.D. | 72 A. N. Wakefield, M.D. |
| 28 DILLSBURG, | 44 LANCASTER, |
| 41 Henry W. Fishel, M.D. | 73 M. F. Steigerwalt. |
| 42 Ambrose Pepper, M.D. | 74 R. M. Bolenius, M.D. |
| 43 J. H. Graff, M.D. | 75 D. R. McCormick, M.D. |
| (alternate.) | 76 Richard Reilly. |
| 44 George Smith (alternate). | 77 A. R. Barr. |
| 29 DOWNINGTOWN, | 78 Jacob Halbach. |
| 45 L. T. Bremerman, M.D. | 79 Walter Boardman, M.D. |
| 46 T. E. Parke, M.D. | 80 D. Frank Kline, M.D. |
| 30 DUBOIS, | 45 LEBANON, |
| 47 W. S. Luther. | 81 John Walter, M.D. |
| 48 J. C. Sullivan, M.D. | 82 Reuben Schwartz, M.D. |
| 31 EASTON, | 83 Alfred C. Hersh. |
| 49 J. S. Hunt, M.D. | 84 Hiram M. Holstein. |
| 50 Z. Taylor. | 46 LEHIGHTON, |
| 51 H. C. Tilton. | 85 W. W. Reber, M.D. |
| 52 L. M. Fine. | 47 LILLY, |
| 32 EDGEWOOD, | 86 T. L. Armatage, M.D. |
| 53 James H. Harlow, C.E. | 48 LITIZ, |
| 33 EDWARDSVILLE, | 87 Rev. C. B. Schultz. |
| 54 Lewis Edwards, M.D. | 88 P. J. Roebuck, M.D. |
| 34 FLEETWOOD, | 49 LOCK HAVEN, |
| 55 J. R. Lentz, M.D. | 89 R. B. Watson, M.D. |
| 56 Amandus Kern. | 50 LUZERNE, |
| 35 GETTYSBURG, | 90 D. O. Coughlin. |
| 57 J. W. C. O'Neal, M.D. | 51 LYKENS, |
| 58 Dr. Dickson. | 91 L. D. Stickel. |
| 36 GIRARDVILLE, | 52 MAHAFFHY, |
| 59 A. F. Bronson, M.D. | 92 Henry Breth. |
| 60 E. D. Gregory (alternate). | 53 MAHANOV CITY, |
| 37 HALIFAX, | 93 Andrew Comrey. |
| 61 J. W. Shope, M.D. | 54 MANOR STATION, |
| 62 A. H. Putt. | 94 J. M. Kelley. |

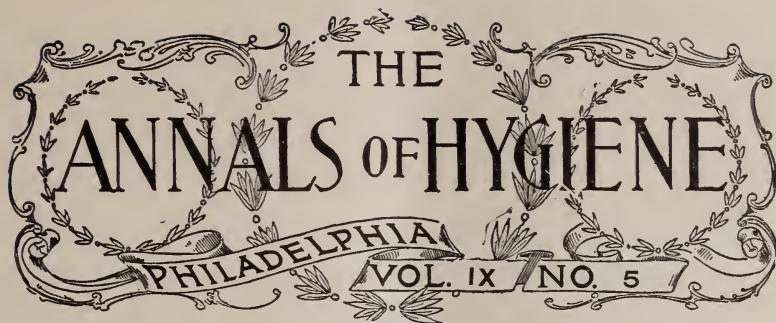
- 55 McDONALD,
95 W. A. La Ross, M.D.
- 56 McKEESPORT,
96 Theo. Tonnele.
97 H. S. Newlin, M.D.
98 A. C. Wallace.
- 57 McSHERRYSTOWN,
99 George H. Weaver.
- 58 MECHANICSBURG,
100 P. R. Koons, M.D.
101 Ed. S. Wagoner.
- 59 MILLERSBURG,
102 A. Douden.
103 John F. Bowman, M.D.
- 60 MILLVALE,
104 W. A. Young.
- 61 MILTON,
105 J. Hunter Miles, M.D.
- 62 MINERSVILLE,
106 E. L. Straub, M.D.
107 J. H. Levan (alternate).
- 63 MOUNT JOY,
108 Thomas J. Brown.
NEW BLOOMFIELD,
109 A. R. Johnston, M.D.
110 C. E. Barnett.
- 65 NEW CUMBERLAND,
111 H. W. Linebaugh, M.D.
112 J. B. Kauffman.
- 66 NEW FREEDOM,
113 George S. Stone, M.D.
- 67 NEW OXFORD,
114 J. L. Sheetz, M.D.
- 68 NEWPORT,
115 H. O. Orris, M.D.
- 69 NEWVILLE,
116 Dr. Book.
117 W. B. Reynolds, M.D.
- 70 NORRISTOWN,
118 H. H. Whitcomb, M.D.
119 Charles Bradley, M.D.
120 Joseph Shaw.
121 C. P. Weaver.
- 71 NORTH EAST,
122 G. W. Blaine.
- 72 NORTH WALES,
123 H. F. Slifer, M.D.
- 73 OXFORD,
124 Dr. Gillespie.
- 74 PATTERSON,
125 Samuel A. Suloff, M.D.
- 75 PHILLIPSBURG,
126 J. W. Dunwiddie, M.D.
127 S. F. Lytle, M.D.
128 A. V. Hoyt.
- 76 PHOENIXVILLE,
129 Moritz G. Lippert.
130 J. G. Shoemaker, M.D.
- 77 PHILADELPHIA,
131 A. M. Beitler.
132 Wm. H. Ford, M.D.
133 A. A. Hirst.
134 A. H. Dingee.
135 P. D. Keyser, M.D.
136 J. Lewis Good.
- 78 PITTSBURG,
137 Crosby Gray.
- 79 PORT OF PHILADELPHIA,
138 Henry C. Boenning, M.D.
- 80 POTTSVILLE,
139 A. H. Halberstadt, M.D.
- 81 READING,
140 M. A. Rhoads, M.D.
141 Hon. Thomas P. Merritt.
- 82 RENOVO,
142 Malcolm McCallum.
- 83 ROVERS FORD,
143 George W. Stein, M.D.
- 84 RUTLEDGE,
144 E. S. Haines, M.D.
- 85 SCRANTON,
145 J. K. Bentley, M.D.
146 W. A. Paine, M.D.
147 W. E. Allen, M.D.
- 86 SELINS GROVE,
148 B. F. Wagenseller, M.D.
- 87 SHAMOKIN,
149 R. L. Wright, M.D.
- 88 SHENANDOAH,
150 S. C. Spaulding, M.D.
151 F. F. Miles.
- 89 SHIPPENSBURG,
152 John E. Boker.
153 Samuel Wolfe.
154 Wm. M. Geesaman.
- 90 SHIREMANSTOWN,
155 S. S. Rupp.
156 J. M. Miller.

238—The Annals of Hygiene

- | | |
|--|---|
| 91 SLATINGTON, 157 F. O. Ritter, M.D. | 104 TREMONT, 177 John Marks. |
| 92 SOUTH BETHLEHEM, 158 J. Warren Martenis. | 105 TROY, 178 G. W. Gregory, M.D. |
| 93 SOUTH CHESTER, 159 W. F. Lehman, M.D. | 179 Daniel Fleisher. |
| 94 SOUTH EASTON, 160 Alfred Schaefer. | 106 UNION CITY, 180 L. D. Rockwell, M.D. |
| 161 J. S. Aldridge. | 107 WARREN, 181 W. S. Leffard. |
| 95 SPRING CITY, 162 Rev. John Flint. | 108 WAYNESBORO, 182 Hon. A. H. Strickler, M.D. |
| 96 STATE QUARANTINE BOARD, 163 Major Moses Veale. | 183 W. W. Frantz. |
| 164 Benjamin Lee, M.D. | 109 WEATHERLY, 184 J. B. Tweedle, M.D. |
| 97 STEELTON, 165 Charles H. Saul, M.D. | 110 WEST CHESTER, 185 Jesse C. Green, M.D. |
| 166 David R. Hoffman. | 111 WEST ELIZABETH, 186 A. M. Pierce, M.D. |
| 167 Martin Hocker. | 187 Isaiah Phillips. |
| 168 Adam Beinhower. | 112 WEST PRITSTON, 188 Benjamin Bevan, M.D. |
| 169 J. Mark Peters, M.D. | 113 WILKINSBURG, 189 J. E. Rigg, M.D. |
| 98 STEWARTSTOWN, 170 J. R. Martin, M.D. | 190 W. R. Stephens, M.D. |
| 171 J. M. Hendrix. | 114 WILLIAMSPORT, 191 A. Richter, M.D. |
| 99 STROUDSBURG, 172 W. E. Gregory. | 115 WILLIAMSTOWN, 192 G. M. Stites, M.D. |
| 100 SUNBURY, 173 F. K. Hill. | 193 D. F. Lebo. |
| 101 TAMAQUA, 174 J. W. Coble, M.D. | 116 WYOMING, 194 Charles P. Knapp, M.D. |
| 102 THOMPSONTOWN, 175 W. H. Haines, M.D. | 117 YORK, 195 Professor A. Wanner. |
| 103 TOWER CITY, 176 H. T. Bressler. | |

The Report of The State Sanitary Convention.

IT was our original intention to have published the discussion of each paper presented to the Convention immediately after the paper itself. The stenographer delayed so long in sending in his report that this was found to be impracticable. Hence, all of the papers have been published, as far as possible, in the order in which they were read, and the discussions and proceedings follow by themselves.



COMMUNICATIONS.

Restriction and Prevention of Dangerous Communicable Diseases from the Stand-point of the Health Officer and Physician.

BY FRANK M. GIER, M.D.,
Health Officer, Hillsdale, Michigan.



It is no longer a theory, but is now a settled scientific fact, that each communicable infectious or contagious disease is dependent upon and is the legitimate result of the ravages of a specific germ, always characteristic of the disease. The disease is a direct result of the invasion of the germ, or of a series of poisons, generated by the germ in its destruction of animal tissue.

In presenting this paper at a public sanitary convention, to which are invited ladies and gentlemen from all walks in life, I have thought it best to dispense with scientific terms and expressions as far as possible, and describe to you as best I can, with the aid of illustrations, the causation of a few of the most common communicable diseases, giving a description of the germ, its mode of invasion, a short account of its destructive ravages, and the methods now in use for the restriction and prevention of the disease. It cannot be without interest to know that the germs causing such diseases as consumption, small-pox, cholera, typhoid fever, diphtheria, measles, scarlet fever, and others of our contagious diseases have been discovered, named, classified, and carefully studied within the last fifteen years. So rapid has

been scientific progress in these lines, and so much has been discovered by the aid of the microscope in disease and in culture media, that the relations between the pathogenic germs and pathological condition in most contagious diseases are settled facts.

To accomplish what is embodied in the title of this paper—in other words, to restrict or limit the ravages of contagious diseases, or, better, to prevent their outbreak—necessarily demands a thorough knowledge of their causation, and as it has been proved beyond any doubt that each disease depends upon its specific pathogenic germ, we naturally inquire, What is a disease-germ, and how can we destroy it?

Formerly, these germs were supposed to be animal life; but most of the disease-producing germs are now recognized as vegetable micro-organisms. I do not mean, of course, that there is no microscopic animal life, for the universe teems with these infinitely small creatures, greater in number and variety than their visible relatives; but the germs that cause or enter into the cause of most of our communicable diseases are vegetable. So closely are they allied, however, and so nearly alike are their characteristics, that it is wellnigh impossible to differentiate them, the principal method of which is to distinguish the manner in which they take their food.

The standard of measurement used by bacteriologists is the micromillimetre, which is equal to about one twenty-five-thousandth of an English inch. Some of these germs have been found that were one three-hundredth of an inch long. Think of it! 300 of them in line to cover one inch: and these are the mastodons, the giants of the germ kingdom. Others are so small that it takes 25,000 of them, placed end to end, to cover the space of one inch; and it is estimated that it would take hundreds of thousands of these live, active, organized, disease-producing germs to displace a single draught of water. Their movements are interesting, and seem almost to be directed by consciousness. In a drop of liquid, under the microscope, they may be seen moving singly or in pairs, then again in a row, chain-like, or in masses. They may be seen shooting across the field of vision like a flash, then backward as fast, remaining motionless a moment, then spinning with wonderful velocity, and again dashing back and forth as long as watched.

Sternberg says of these bacteria that they are unicellular,—

that is, one single cell, which consists of a cell membrane, enclosing transparent and apparently structureless protoplasm. The varied biological characteristics which distinguish different species make it evident that there are essential differences in the living cell-contents, although these differences are not revealed by our present optical appliances. And among the bacteria, as in the cells of higher plants and animals, the peculiar biological characters of a species are transmitted to the progeny of each individual cell. These characters are, however, subject to various modifications, as a result of different conditions of environment, as is the case with plants and animals higher in the scale of existence, and in this way more or less permanent varieties are produced. It is probable that among these lower plants species are evolved more quickly, as a result of the laws of natural selection in the struggle for existence, than among those of more complex organization.

They multiply very rapidly, and in most cases reproduce by binary division. By this is meant that the cell enlarges, then elongates, and divides into two, by constriction, through the centre of the cell. The constriction soon divides the original cell, leaving two new active cells, which, in turn, soon divide, and though they are so very small, and singly unimportant, yet it is estimated that if nature had not provided a means for their destruction, in a very few days there could be evolved from one single cell bacteria enough to fill the ocean.

In their development, and in their destruction of animal tissue, there is produced a poison which soon destroys the germs that come in contact with it; but this same poison there produced, and always characteristic of the species of germ invading the system, causes the characteristic constitutional symptoms of such diseases as cholera, typhoid fever, and diphtheria.

What is the origin of the germs of consumption, cholera, scarlet fever, diphtheria, and typhoid fever? I cannot tell you. I do not know the origin of the horse, the sheep, or the dog. But this is true; there is not a single case of cholera until the patient has been infested by the comma bacillus; there has never been a case of typhoid fever without the presence of the typhoid bacillus; no child ever suffered the furies of diphtheria unless the membranes of its throat were first covered with the bacillus diphtheria.

Where these pathogenic germs are unknown, infectious diseases are unknown. Put out of existence these disease-producing

germs, and we shall bury no more of our dear ones, destroyed by consumption, typhoid fever, or diphtheria. And in this lies our duty, to destroy as many of these pests as possible, and then keep at a safe distance from the balance of them.

Nature kindly comes to the assistance of mankind, and protects many of us by destroying these germs even after they have invaded the system. There is inherent in all animals, and manifest to a greater or less extent, a physiological resistance of the infectious diseases. There is no doubt but that every adult in this audience has at some time unawares entertained the germs of the contagious diseases of Michigan. We have at some time come in contact with them; dancing in the air, have breathed them into our lungs; we have taken them into our drinking-water, have swallowed them with our uncooked food, have carried them in our clothing and in our hair, have handled them clinging to some old book or paper, and have brought them from some hiding-place where they have lain for years. But bacteria alone, even though of the most virulent type, are not capable of causing disease, unless the conditions are favorable. If this were not so the world would long since have been depopulated. Associated with the pathogenic germs must be a condition of susceptibility on the part of the patient. This may be an impoverished condition of the blood and secretions, abnormal excretions, enervation, and a generally lowered vitality of the system. What is there that will produce such conditions as will unhealthy surroundings, poor ventilation, and unsanitary environments?

Cholera and typhoid fever abhor cleanliness; they avoid the clean streets and sanitary homes of our cities, but swoop down with fiendish vengeance into the hovels and huts and alleys where swarm the human wharf-rats. It is nature's rebuke against filthiness, and exhorts us that cleanliness is surely next to godliness. And, besides furnishing breeding-places and the best possible conditions for the development and continued existence for some kind of germs, these very unsanitary surroundings impair the health and vigor of the inhabitant, and make him the fit subject susceptible to germ-invasion and the development of the disease.

One phase of this subject is of such importance, so little is thoroughly understood, and so much can be accomplished by a thorough knowledge of it, not only in restricting, but in absolutely preventing outbreaks of communicable diseases, that I feel

it a duty to repeat the sentiments I have tried to express. The most putrid and offensive and unsightly cesspools, rubbish-heap, or closet-vault, cannot or will not alone give you cholera, typhoid fever, or diphtheria. Such conditions may enfeeble you by impairing general health and vitality, and thus make you ready subjects for the diseases, but without the presence of the pathogenic germ they are harmless compared to their condition when infected with the disease-germ. Drop a single germ of cholera or typhoid fever into such a cesspool, vault, or garbage-pile, and immediately the whole will become a living mass of death-dealing forces. Such spots are the most fertile fields for a few kinds of germ-development, and from a single one hundreds may be infected, as was the case up at Ironwood, where they were fighting an outbreak of typhoid fever. It is a remarkable fact that since I have acted as health officer in this city of 5000 souls, over three years in time, there has not been reported a single case of typhoid fever. Why? Simply because we are not pumping any typhoid fever-germs from old Baw Beese lake.

The channels of infection are mainly through the mucous membrane of the bowels and stomach, and through the mucous membrane of the organs of respiration. We take the germs of typhoid and cholera in our food and drink, and if they are not destroyed by the digestive ferments and by-products of digestion, they immediately begin development and their work of destruction. We breathe the germs of consumption into our lungs, and if they are not destroyed by the action of secretion and blood, they immediately there set up inflammation and destructive changes.

Consumption, the plague of mankind, the disease that destroys at least one-eighth of the human race, is a communicable disease, the germs entering the system in most cases through the mucous membrane of the lungs. It has been proved beyond doubt that we do not inherit consumption; we inherit a susceptibility, a favorable condition for the lodgement and development of the tubercle bacilli.

I have tried, in my humble way, to describe to you the causation of the dangerous communicable diseases, giving a short general description of the germs, how they develop, how they enter the system, and what their effects. It remains now to recite the latest method of disinfection and destruction of these germ pests.

I find that many, or most people, do not understand the meaning of the word disinfection. To them, anything that will destroy offensive odors is a disinfectant. But this is far from true, and one of the most fatal mistakes ever made. To the masses, the purpose of disinfection is to destroy the offensive odors in a sink-room, a closet-vault, or a decomposing mass. The true object of disinfection is to prevent the extension of the infectious diseases, by destroying the specific infectious material which gives rise to them. The injurious consequences which are likely to result from such misapprehensions and misuse of the word disinfectant will be appreciated when it is known that recent researches have demonstrated that many of the agents which have been found useful as deodorizers, or as antiseptics, are entirely without value for the destruction of disease-germs.

The American Public Health Association had a special committee on disinfectants, and the following are briefly its recommendations :

The three methods of disinfection are, first, by fire, destruction by burning ; second, subjecting anything to be disinfected by superheated steam or dry heat ; and third, by the use of chemical germicidal poisons.

For disinfection of clothing, bedding, and rags :

- (1) If of little value, complete destruction by burning.
- (2) Boiling for at least one-half hour.
- (3) Exposure to superheated steam, temperature 221° F., for ten to twenty minutes.
- (4) Exposure to a dry heat for two hours at a temperature of 230° F.

Furniture and articles of wood, leather, and porcelain :

Washing frequently with a 2-per-cent. solution of carbolic acid.

For the person: The hands and general surface of the body of the attendants of the sick, and of convalescents, should be washed with :

- (1) Solution of chlorinated soda, one part to ten of water.
- (2) Carbolic acid, 2-per-cent. solution.
- (3) Mercuric chloride, 1 part to 500 of water.
- (4) Carbolic acid, 5-per-cent. solution.

For disinfection of the sick-rooms :

- (1) First rub the surface of the walls and ceiling with a piece of new bread, if the walls are painted or covered with paper. This is the best method to detach any germs.

(2) Fumigate with sulphur dioxide or fumes of burning sulphur for twelve hours, using at least three pounds of sulphur for every 1000 cubic feet of air-space in the room.

(3) Then wash the walls with :

(a) Mercuric chloride solution 1 to 1000.

(b) Carbolic acid, 2-per-cent. solution.

For excreta in sick-room :

(1) Chloride of lime, 4-per-cent. solution.

(2) Carbolic acid, 5-per-cent. solution.

(3) Sulphate of copper, 5-per-cent. solution.

For closet-vaults :

(1) Mercuric chloride, 1 part to 500 of water.

(2) Carbolic acid, 5-per-cent. solution.

The infectious character of the dejections of patients suffering from cholera and from typhoid fever is well established. They are dangerous in mild cases as in severe and fatal ones. It is probable that epidemic dysentery, tuberculosis, and perhaps diphtheria, yellow fever, scarlet fever, and typhus fever, may also be transmitted by means of the alvine discharges of the sick. It is therefore important that these should be thoroughly disinfected.

In cholera, diphtheria, yellow fever, and scarlet fever, all vomited material should be looked upon as infectious. And in tuberculosis, diphtheria, scarlet fever, and infectious pneumonia the sputa of the sick should be destroyed by fire, or thoroughly disinfected.

Statistics from the State Board of Health show that hundreds of lives are saved in Michigan every year by attention to these methods. If citizens would unite with health boards in a complete observance of methods now observed by sanitarians, we could not only restrict but absolutely prevent such diseases as typhoid fever, cholera, diphtheria, scarlet fever, small-pox, and consumption.

Prevent these diseases, and health will come, not, as the poet said, "Like some untimely frost upon the sweetest flower in all the field," but in the autumn of life, and with the gathered grain, and when the fruit has fallen from the trees.

On Vaccination.¹

BY ALVAH H. DOTY, M.D.,

Chief Inspector Contagious Diseases, Health Department of City of New York.



O one who has carefully investigated the subject, it is evident that the people of this country are not properly protected by vaccination. The apathy shown in this matter is surprising when the large mortality from small-pox in the unprotected is considered, as well as the simple manner by which protection may be afforded. Many children remain unvaccinated as late as the fifth or sixth year, and revaccination receives practically little consideration. It is the latter which in a great measure is responsible for the presence of small-pox in this city.

It may not be amiss at the present time to review briefly the history of vaccination, with a presentation of statistics and such practical points as may be of interest to the profession.

Edward Jenner, the discoverer of vaccination, was born in 1749, in Berkeley, Gloucestershire, England. Early in life he showed a predilection for natural history, the preparation of zoölogical specimens, etc., and apparently had resolved to follow this occupation. It was decided, however, that he should enter the medical profession, and he was apprenticed to Mr. Ludlow, a surgeon of Sodbury, near Bristol. It was during this period that the power of vaccination was unfolded to him. He had learned of the tradition existing among the people employed in dairies, that those whose hands became infected as the result of milking cows having an eruption about the teats and udder, known as "cow-pox," were protected against small-pox. It seems strange that this report had not received greater attention, but the indifference of the people generally to traditions, and the reticence on the part of owners of dairies to furnish any information which might injure their business, may partly account for it. It did not escape the observation of Jenner, who, for almost thirty years, carefully and patiently investigated the subject, and having demonstrated the protection afforded by vaccination to his entire satisfaction, gave to the world, in 1798, his description and results

¹ From the Medical Record.

of vaccination in a paper entitled "An Inquiry into the Cause and Effect of Variola Vaccina." During the period of his investigation he did not try to conceal his discovery, but freely discussed it and invited help, but met with nothing but indifference and discouragement. Even John Hunter, under whose care Jenner, as a favorite student, studied while in London, and with whom he lived for two years, was not impressed with the importance of vaccination; he occasionally spoke of it to his friends and referred to it in his lectures, but nothing more. Undaunted, Jenner continued his work, and at last, on May 14, 1796, vaccinated James Phipps, 8 years of age. The operation was successful, and in July of the same year the boy was inoculated with lymph taken from a small-pox vesicle, and, as Jenner predicted, no result followed. The disappearance of cow-pox retarded the investigation until 1798, when vaccination was repeated. In the mean time he had gone to London to continue his work, but it was three months before a vaccination was performed in that city. This was done by Mr. Cline, a surgeon connected with one of the hospitals, who vaccinated a boy suffering from hip-disease, not so much as an evidence of his belief in its protective influence, as in the hope that it might prove to be a good counter-irritant. Other vaccinations followed, and the success of the new discovery became assured. Vaccination spread rapidly throughout England and the Continent; not, however, without considerable opposition and many annoyances to Jenner, principally on account of the ignorance displayed on the part of those who vaccinated, and the worthless quality of the virus used.

Vaccination was introduced into the United States in 1800, by Dr. Benjamin Waterhouse, of Boston, and in New York by Dr. Valentine Seaman, who, on May 22, 1801, vaccinated several persons with lymph obtained from the vesicle on the arm of a servant of Governor Sergeant, who was vaccinated in Boston by Dr. Waterhouse, and arrived here before the eighth day. In January, 1802, an institution for the purpose of free vaccination was established in this city, with Dr. Samuel Scofield as resident surgeon. This was subsequently merged into the New York City Dispensary.

Jenner continued his work more or less actively. The Royal Jennerian Society, over which he presided, was established in 1802, but owing to dissension among its members this association failed in 1808, and was succeeded by the Royal Vaccine Establish-

ment. The latter part of Jenner's life was spent in Berkeley, where he died on January 26, 1823, of apoplexy.

There is probably no subject the statistics of which are more voluminous and convincing than those relating to vaccination. A few of them may be of interest, as showing the marked change in the frequency and mortality of small-pox before and after the introduction of vaccination.

In the city of London, between the years 1790 and 1800, the population being about 250,000, there were recorded an average of 1780 deaths annually from small-pox. In the same city, between 1855 and 1868, the population being ten times greater, the records show an average of 729 deaths annually from small-pox. If the mortality from small-pox in London at the present period was equal to that of the prevaccination era, there would be annually 28,500 deaths from this disease. The following table shows the number of deaths from small-pox in London per 100,000 inhabitants before and after 1800:

| | Average. |
|------------------------|----------|
| 1790 to 1800 | 712.0 |
| 1855 to 1868 | 30.4 |
| 1875 | 1.3 |
| 1876 | 20.8 |
| 1877 | 71.1 |
| 1878 | 38.8 |
| 1879 | 12.1 |
| 1880 | 12.5 |
| 1881 | 61.9 |
| 1882 | 11.1 |
| 1883 | 3.4 |

In Vienna, between 1790 and 1800, the average number of deaths annually from small-pox was 835; in 1801, 164; in 1802, 61; in 1803, 27; in 1804, 2.

From the records of interment in Trinity and St. Paul churchyards, in this city, it appears that there were 5756 burials in these cemeteries between the years 1785 and 1800. Of these, 610, or one-tenth of the entire number, died of small-pox. During the years 1805 and 1806 there were 4595 burials; of these, 110, or one-fortieth of the entire number, were deaths from small-pox.

Werner, in speaking of the helplessness of the people in the prevaccination period, says that in non-epidemic years one-tenth of all mortality was from small-pox, and in epidemic years, which occurred every third or fifth year, one-half of the mortality was

due to this disease. One-third of the babies born died before the end of the first year, and those who were affected with small-pox and survived it were either blind or otherwise disfigured. In 1734 two-thirds of the entire population of Greenland died from small-pox.

Jenner believed that one successful vaccination was sufficient for life, and he regarded the cases of small-pox occurring a number of years after a primary vaccination as being due to unsuccessful operation. The necessity for revaccination did not become apparent until the latter years of his life, during which time he had practically given up his active investigation. About the time of his death, however, it became a well-recognized fact that small-pox was occurring in those who had been successfully vaccinated in childhood, and that the protective power of vaccination became diminished about puberty or before. Vaccination was made compulsory in Russia, Sweden, Denmark, and Bavaria in 1838. It was also made compulsory in other countries of Europe. Statistics then began to show the value of the secondary vaccination. Hein found that in five years, among 14,384 revaccinated soldiers in the Würtemberg Army, but two cases of small-pox occurred, and among 30,000 revaccinated civilians there were also but two cases of the same disease recorded. During this period, however, there were recorded 1674 cases of small-pox in the same section of country. Since 1834, when systematic revaccination was begun in the German army, nearly all the cases which have occurred have been recruits who had not yet been vaccinated. Marston states that during his service of thirty-two years in the Small-pox Hospital in London, every servant and nurse was vaccinated on first entering the institution, and during this service none of them were affected with small-pox.

Primary vaccination, but not revaccination, is compulsory in England, while in Germany both are compulsory. The following table from Gerstacker shows the marked effect of revaccination.

DEATHS FROM SMALL-POX PER 100,000 INHABITANTS.

| | 1875 | 1876 | 1877 | 1878 | 1879 | 1880 | 1881 | 1882 | 1883 |
|--|------|------|------|------|------|------|------|------|------|
| Primary vaccination, compulsory. In London | 1.3 | 20.8 | 71.0 | 38.8 | 12.1 | 12.5 | 61.9 | 11.1 | 3.4 |
| Primary and revaccination, compulsory. In Berlin | 5.2 | 1.8 | 0.4 | 0.8 | 0.7 | 0.8 | 4.7 | 0.4 | 0.3 |

There were 384 cases of small-pox reported to the Health Department of this city during 1892; of which 232 were over fifteen years of age. Thus far, in 1893, there have been 415 cases reported, of which 274 were over fifteen years of age. The percentage of cases over fifteen years of age is so large that it would indicate that these people had not received the benefit of revaccination. An investigation of the cases showed this to be a fact, the history given by the patients referred to, and the presence of at least one good scar in most cases, indicated that they had received the benefit of a successful primary vaccination; the statements made by these people relative to later vaccinations were imperfect and very unsatisfactory.

As might be expected, a large per cent. of the above number were mild cases, made so by the protecting influence of the early vaccination. Still these cases are, as a rule, the most dangerous to a community; the eruption frequently being very slight and with no pronounced constitutional symptoms, they mingle with others and scatter the contagion broadcast. A very striking instance of the value of revaccination occurred during the recent outbreak of small-pox. Towards the latter part of August of this year, eight cases of this disease were discovered in the lower part of the city; they had been regarded as measles and no quarantine observed. New cases soon followed these, and it left no doubt but that others would occur. The infected district included "Cherry Hill," which, as it is well known, is in some portions densely populated, the people being crowded into small and old-fashioned houses, some of which open into alleys, oftentimes with an entire family occupying one room, and with very little attention given either to personal or general hygiene. A number of vaccinators were assigned to this district and began a house-to-house vaccination. The houses were visited night and day in order that all the tenants might be found and vaccinated. Fully three-fourths of the cases of small-pox removed from this locality were adults, and the work of the inspectors consisted principally of revaccination; as a result, the outbreak, which at the beginning bid fair to become an epidemic, was entirely under control within a short time. The effect of the good work accomplished at this period is well illustrated by the following table:

SECTION OF THE CITY IN THE VICINITY OF "CHERRY HILL."

| Date. | Number of cases. | Date. | Number of cases. |
|-----------------------------|---------------------|----------------------------|---------------------|
| September 1 to 7 | 8 | October 20 to 26 | 3 |
| " 8 to 14 | 3 | " 27 to November 2 . . . | 3 |
| " 15 to 21 | 18 | November 3 to 9 | 0 |
| " 22 to 28 | 16 | " 10 to 16 | 1 |
| " 29 to October 5 | 5 | " 17 to 23 | 0 |
| October 6 to 12 | 7 | " 24 to 30 | 0 |
| " 13 to 19 | 7 | | |

It is the necessity for better protection against small pox that has led the Health Department to push vigorously the work of vaccination and revaccination in this city, and the department has endeavored in all cases to co-operate with and gain the approval of the medical profession in this important matter. The work is done at the public expense, and is a public measure of safety; and it is the duty of the Health Department to respond to all requests for vaccination, whether it is from the rich or poor.

The Bavarian statistics given by Dr. Gerstacker as to the relative mortality from small-pox in the unvaccinated, in those who have been once successfully vaccinated, and those who have been successfully revaccinated, indicate the following result:

Of 1886 cases reported, there were:

| | Mortality per cent. |
|---|------------------------|
| 148 unvaccinated | 44.6 |
| 1510 one successful vaccination | 12.6 |
| 226 revaccinated successfully | 6.1 |

Children should be vaccinated prior to the third month, unless contraindicated by some acute disease, diarrhoea, cutaneous diseases, particularly of the vesicular type, as herpes, eczema, and intertrigo; in fact, Jenner's rule "to sweep away all eruption from the skin previous to inserting the lymph" is still a safe guide. These eruptions have been known, according to Seaton, to interfere with variolous inoculation. Children are very susceptible to small-pox, and if exposed to this disease and unprotected, should be vaccinated at once; this may be done on the day of birth with satisfactory result.

The age at which revaccination should be performed cannot be definitely settled, although there is no doubt that puberty is a period during which time the susceptibility to small-pox is marked, and it may be accepted as a rule that revaccination should in all cases be performed between the ages of ten and fifteen years. In

Germany it is compulsory between ten and twelve. A successful primary vaccination in childhood and a successful revaccination at puberty undoubtedly give to the majority of persons the complete protection of vaccination throughout life. Unnecessary vaccination could be avoided if physicians would carefully observe each vaccination performed, and if successful, give a certificate stating the name and age of person vaccinated, whether a primary or a revaccination, date, etc. In this way an authentic history of each case could be obtained.

Horse-pox, a disease similar to cow-pox, was confounded by Jenner with the "grease," both of which affect the heel of the horse, but are of entirely different origin. He regarded cow-pox as a disease communicated from the horse to the cow by the hands of those who had the care of both animals. Inoculation performed with lymph taken from the vesicle of horse-pox has proved quite successful in the human being, and there seems to be little doubt but that horse-pox (*variola equina*) and cow-pox (*variola vaccina*) are the result of variolous infection of these animals communicated to them in different ways. This susceptibility to variola appears to be confined principally to the cow and horse; other animals are said to be more or less susceptible, but statistics in regard to this are insufficient for definite proof.

Inoculation with lymph taken from the vesicle of small-pox was in vogue at least one hundred years before vaccination. It was practised extensively in Constantinople in 1700, and introduced into England in 1821. That it rendered small-pox comparatively harmless (about three or five deaths per 1000 persons inoculated) was undoubted. It, however, was a means of propagating the disease in the communities where it was practised, which was a fatal objection, and, after having caused the death of a number of prominent persons, it was made unlawful in 1840 by an act of Parliament.

The belief existed at one time that the vaccine lymph as it was further removed from its origin (the cow) became progressively weaker and weaker; this has been practically abandoned. The virus is undoubtedly as effective to-day as ever. Retrovaccination consists in inoculating the cow with humanized lymph.

Arm-to-arm vaccination, the method of Jenner and one that is still in use, is the surest way of obtaining a successful vaccination. In taking lymph from a vaccine vesicle, either for arm-to-arm vaccination or for charging quill or ivory points, or for filling

capillary tubes, the following rules should be strictly adhered to: The child selected should be plump and well, with a clear skin, and a perfectly satisfactory family history; the lymph should be removed about 168 hours after vaccination. At this time the vesicle is at its highest state of perfection, the lymph clear and transparent. The puncture should not be made at the base of the vesicle, as there is danger of incorporating blood with the lymph. It should be remembered that the structure of the vesicle is cellular, and a number of punctures should be made in order to properly liberate the lymph, which may at once be applied to the scarified arm of the children who are to be vaccinated. This may be done either by the lancet, a glass rod, quill, or whatever will answer the purpose, provided its surface is smooth and clean. If the lymph is to be taken for future use, it is generally kept on quills or on ivory points. These should be used as early as possible, as they deteriorate rapidly and cannot be depended upon to retain their activity for more than two weeks, although they frequently produce typical vesicles after an interval of months. They should be carefully kept air-tight, at an even temperature of 60° F. The non-observance of this rule is one of the principal reasons why virus frequently fails. The capillary tubes contain lymph for one or more inoculations. They are sealed at the ends by heat, a process which is said to affect the contents unfavorably. The scab or crust from a successful vaccination, which drops off between the twentieth and the twenty-fifth day, is generally used for transmission to hot climates, or in cases where considerable time will elapse before being used. Crusts are used by moistening a small piece with water and rubbing on the scarified surface. The lymph and crust for vaccination should never be taken from a revaccination, but always from a primary vesicle. The foregoing relates to humanized virus. The comparatively slow manner in which it is collected has led to the adoption in this country of the bovine virus, which is easily secured in large amounts, and has proved to be successful. Since the introduction of vaccination, innumerable instruments for scarification have been devised, used, and abandoned as worthless. They cannot be kept properly cleaned, nor relied upon. No better or simpler method can be employed than that recommended by the Health Department of this city, which consists in the use of ordinary needles, which are new and removed from the package at the time of vaccination. A fresh needle is used for each vaccination,

then thrown away. If the needle is fine and sharp, very little pain is experienced. The ordinary lancet is too sharp for proper scarification. If this instrument is preferred for scarification, its point should be blunted by rubbing it over very fine sand- or emery-paper. In this condition, and with a little care, a perfect scarification can be made.

The phenomena associated with a successful primary vaccination are as follows: From two to three days after the vaccination a papule appears, which by the fifth or sixth day becomes a vesicle, cellular in structure, and having a bluish-white or pearly color, with a central depression. When the vesicle is very small it is round and symmetrical, but in this country, where the scarification is comparatively large, the vesicle has an irregular or fluted border due to the coalescence of a number of smaller vesicles. At the end of 168 hours after vaccination the vesicle has become fully formed, and is plump and distended with clear lymph. At this period a ring of inflammation begins to surround the base of the vesicle, and for the next two days spreads in a circular form, and when fully developed is from one to two inches in diameter. It is often attended with considerable hardness and swelling of the subjacent connective tissue. This inflammatory ring is known as the "areola" and represents a successful vaccination, and may be regarded as almost pathognomonic. The areola begins to fade about the tenth or eleventh day. The lymph has now become opaque, and the vesicle is dry in the centre, and by the fifteenth day a hard brown scab is formed, which becomes darker and falls off between the twentieth and twenty-fifth day. There is usually more or less constitutional disturbance, elevation of temperature, restlessness, and the axillary glands may also become involved. The constitutional symptoms, however, are not essential to a successful vaccination. A vesicular eruption occasionally occurs which resembles varicella, with which it may be confounded. It does not, however, resemble the vaccine vesicle. This complication very rarely occurs in the adult.

The marked features of the vesicle following a successful primary vaccination do not, as a rule, appear in a revaccination, neither is the typical areola present, although considerable local inflammation may follow the operation. The latter appears as early as the third or fourth day. The axillary glands may be affected, and there is more or less constitutional disturbance.

The scab becomes detached and drops off during the second week.

A fungoid growth, having a raspberry appearance, occasionally occurs in place of the vesicle ; it remains two or three weeks and gradually disappears, generally leaving no scar. It affords no protection whatever against small-pox, although it is sometimes improperly regarded as a successful vaccination. This growth also follows a revaccination.

Maternal Indifference.

BY W. THORNTON PARKER, M.D.



THE picture of Rachel, mourning for her children and refusing to be comforted, is indeed sad enough, but there is another view of life still more solemn, and if report be true, not uncommon in this day and generation, and that is, maternal indifference to children. We cannot consistently place the responsibility for this abnormal state of affairs wholly upon our women. There are many causes why maternity is, to say the least, inconvenient. If we look about us at the young couples starting out in life, we find some who are fortunate enough to be able to have a home, and by the word "home" is meant something more than a tenement in an apartment house, or board and lodging at some hotel or boarding-house. What is a young couple to do? The purse is a slender one ; the husband's business is in the city,—a real home is beyond their means. To keep up an appearance, a flat in an apartment house is the best that they can do. We all know how the landlords of these pretentious buildings prefer tenants without children. It is appalling to find on every hand this premium for married couples whose only pets are dogs, cats, parrots, and canary birds, where God's loveliest gift, a precious little infant, would be an unwelcome intruder. The apartment house then is, without doubt, a potent factor in this childless generation. It may be well to draw the veil here, and not disclose how this system, like the boarding-house and the hotel, is destructive of morals, and in countless instances the feeder of the divorce courts. The inattention to the hygiene of womanhood, the errors in dress, the

luxurious lives of our girls, the late hours, the undue excitement caused by the demands of fashion, all these have contributed to bring about the lowered standard of health in American women. Our brides are pretty, entertaining, and even accomplished, but how seldom are they truly healthy.

On this account alone, they themselves, as well as those who love them, think it best to consider maternal responsibilities undesirable. Very often the husband, proud of the beauty and attractiveness of his wife, would strive to keep her young and fair. He erroneously considers maternity an obstacle to this. He either forgets or is ignorant of the fact that God has blessed and selected woman for the high estate of motherhood. It is equally true that nature places its condemning stamp on every woman who shirks the noble duty expected of her. But assuming that our young couple have sought and found a veritable home, and, as our ancient English marriage-service has so plainly stated it, that in the fear and nurture of the Lord they recognize the fact that "matrimony was ordained for the procreation of children." We will consider how we can aid them by some advice. Unquestionably, it is every woman's duty to make herself familiar not only with the laws of hygiene affecting womanhood, but to acquire such information as may be useful in the care and management of infancy.

The Extinction of Contagious Diseases.¹

BY WALTER WYMAN, M.D.,

Supervising Surgeon-General, Marine Hospital Service.



THE Japanese have recently illustrated how a disease, commonly thought to be infectious, may be eliminated through scientific investigation and the application of a proper remedy. Prior to 1884, beriberi was the scourge of the Japanese navy. During a period of six years, prior to 1884, there were 9516 cases reported, while for a second period of six years, from 1884 to 1889, inclusive, there were but 765 cases, of which 718 occurred in 1884, which was the year in which the remedy relating to a change in the character of

¹ Abstract of Address before the American Medical Association.

the food furnished was applied. In 1887, there was not a single case reported in the entire navy of 9000 men; and the *New York Medical Record* aptly remarks that, "This is one of the greatest victories of science, and lends ground to the hope that beriberi may before long become a rare, or even unknown, disease in the Mikado's dominions."

As to the United States, the time is at hand when we may expect that no more shall cholera, typhus, yellow fever, or small-pox prevail in epidemic form. Never before have our ports been provided as now with protective armaments, the ordnance, so to speak, of sanitary defence. The great power of steam has been invoked and along the coast from Portland, Maine, to Port Townsend, Washington, where ten years ago not a single port was provided with a steam disinfecting chamber, there are now twenty-three ports with steam-chambers in actual operation, or in course of construction.

In connection with the extermination of the source of epidemic disease should be mentioned the recent brochure of Dr. J. Telyafus, of Tiflis, Russia, who has expressed his views upon the means of strangling cholera in its Indian home, and thus freeing Europe and America from the constant menace of its periodical excursions.

I quote from a recent review:

"Doctor Telyafus takes exception to the opinion that any attempt to exterminate the germs of cholera in India is utopian. He states that it has been stamped out in the Nile Delta, and that similar or more energetic measures would be equally effectual on the banks of the Ganges. Formerly the Fallaheen of Egypt interred their dead on the banks of the river Nile, and the bodies were then washed out into the stream during the annual overflow of the river, and were carried down to spread the disease throughout the delta. Since an end has been put to this custom, the plague no longer harasses the country. While it would be difficult, if not impossible, to restrain the natives of India from casting their dead into the waters of the sacred Ganges, it might be possible to compel them to cremate their dead and throw the ashes, if they will, on the border of the river. Drainage and the planting of the eucalyptus tree, while an enormous undertaking, is one, in the opinion of Dr. Telyafus, not impossible, similar work having been already accomplished with profitable results in Algiers."—*Ohio Monthly Sanitary Record*.

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EDITORIAL

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The Prevention of Consumption.

IT is a well-known fact that tubercular consumption causes over twelve per cent. of the deaths recorded in this city, and this is about the per cent. of deaths from this disease for the whole country. Consumption is now believed to be a contagious and a preventable disease, and in view of the excessive number of deaths from this cause the most active efforts should be employed for the prevention of needless suffering and for the saving of human life.

The Philadelphia Board of Health have had in contemplation the official registration of this disease, for the purpose of locating all cases, so that information as to the means of preventing its spread might be freely circulated. The weight of medical opinion in this city, as expressed through representative medical bodies, has opposed this proposition on the ground that it is unnecessary, since it is held that the attending physician can perform in a perfectly satisfactory manner the duty of instructing the members of the household where consumption exists, and of directing the necessary preventive measures, without the annoyance incident to official interference. Whilst the Board of Health consider that there are valid reasons for believing that the registration of pulmonary tuberculosis would undoubtedly be beneficial by enforcing attention to those sanitary details so apt to be slighted or overlooked, and by enforcing disinfection, they deem it prudent to select a more conservative course in the treatment of this question. They therefore earnestly request the co-operation

of the physicians of Philadelphia in the distribution of circulars of information, and in notifying the Board of Health promptly whenever disinfection is required.

This important question was referred by the board to its Sanitary Committee, and the following is the report of this committee :

The Sanitary Committee, to which was referred the subject of the registration of tuberculosis, together with communications and resolutions from representative medical societies of this city and individual professional opinions, beg leave to make the following report :

Your committee have listened attentively to the arguments for and against the proposed registration, and have carefully studied the subject in detail, both abstractly and in connection with the appositeness of the time and situation for the inauguration of this new procedure, and in relation to the present state of public opinion. There are certain incontestable facts which should have great weight in forming a decision. There is also a latitude for doubt as to the practicability and advisability of adopting at the present time some of the radical measures proposed for inauguration under official direction.

Consumption is an infective disease, caused by the bacillus tuberculosis. All cases take origin directly or indirectly from other cases. A most common mode of infection is by inhaling dry and pulverized tuberculous expectoration. It is a distinctly preventable disease. If all this be true, and it is based upon the most reliable scientific data, it becomes imperative that all known precautions should be employed to prevent the spread of this disease, and particularly because it is one of the most wide-spread of maladies.

During the ten years, 1884-1893, there were 27,289 deaths from consumption in Philadelphia, the mortality from diseases from all causes during the same period being 217,082. The percentage of deaths from consumption to all deaths is thus seen to be 12.52. This is approximately the average percentage of deaths from this disease for the whole country. In order of numbers it stands at the head of the list of deaths from all causes. During the same period the deaths in Philadelphia from diphtheria and membranous croup, scarlet fever, typhoid fever, and small-pox combined were 7.31 per cent. of the deaths from all diseases.

The question is not whether the most active and continuous

effort should be made to prevent the spread of this fatal disorder, but whether the Board of Health should assume this duty in conjunction with the attending physician, and, as a prerequisite in the performance of this duty, require the registration of all cases of this disease. There seems to be valid reasons for believing that the registration of pulmonary tuberculosis would be beneficial, as Professor Osler says, "By enforcing attention to those sanitary details so apt to be slighted or overlooked, and diminishing directly the danger of contagion in the community," and by enforcing disinfection of the rooms and their contents after they have ceased to be used by tubercular patients, as a partial means of restricting the spread of the disease.

There are other avenues of communicating this disease, as, for example, through the use of infected milk, which are independently controlled by other regulations. There are the questions of hereditary transmission of this disease explained by Baumgarten's theory of latency, and of the influence of immunity acquired "by combating inherited weakness, of removing acquired debility, and of maintaining the nutrition at a standard of aggressive activity," which are of the greatest importance, but with these it is beyond our province to deal.

It would seem wise at this stage of the agitation of the subject to act most discreetly and cautiously in view of the danger of antagonism of public sentiment (not yet sufficiently educated and aroused to the necessity of official interference) and its intolerance of publicity and official supervision, which would strike terror into the hearts of the unfortunate sufferers from consumption. There is a middle course that may be pursued at this time with safety and propriety, without its workings becoming offensive, at the same time that they are beneficent, and this course is proposed for adoption. Encourage registration as a preliminary to a future requirement; circulate information with regard to the means of prevention, directly or indirectly; require disinfection when the attending physician so advises, and always after the removal or death of the patient.

The weight of medical opinion in this city appears to be against the registration of pulmonary tuberculosis and the assumption by the Board of Health of the duty of active supervision and disinfection, and thus the medical profession indirectly assumes the responsibility of administering the necessary preventive measures applicable to this disease. It is, therefore, right and

proper and necessary that the profession should realize acutely the weighty obligation which they have assumed, and they should co-operate with the Board of Health in the distribution, in the household where this disease exists, of circulars of information upon the prevention of consumption, and advise the Board of Health whenever disinfection is required. The distribution of official circulars will have the effect of enforcing attention to those sanitary details so apt to be neglected or overlooked, and thus diminish the risk of contagion in the community.

Your committee therefore offers the following resolutions and asks for their adoption :

Resolved, That the proposition to officially register all cases of tuberculosis be postponed for the present.

Resolved, That circulars containing rules for the prevention of the spread of tubercular consumption be prepared, published, and distributed.

Resolved, That the physicians of Philadelphia be earnestly requested to co-operate with the Board of Health in the distribution of these circulars of information, making it an invariable rule to supply every family in which tubercular consumption exists with such a circular ; and, further, to notify the Board of Health promptly wherever disinfection is required.

Resolved, That whenever a certificate of death from tubercular consumption is returned to the health office, a medical inspector shall visit the house where such death has occurred and satisfy himself that thorough official or private disinfection has been performed.

Resolved, That all cases of tuberculosis that may be reported to the Board of Health be entered in a book kept for the purpose, in like manner as other cases of contagious diseases are recorded.

In compliance with the suggestions of the committee, the Board of Health has issued the following circular :

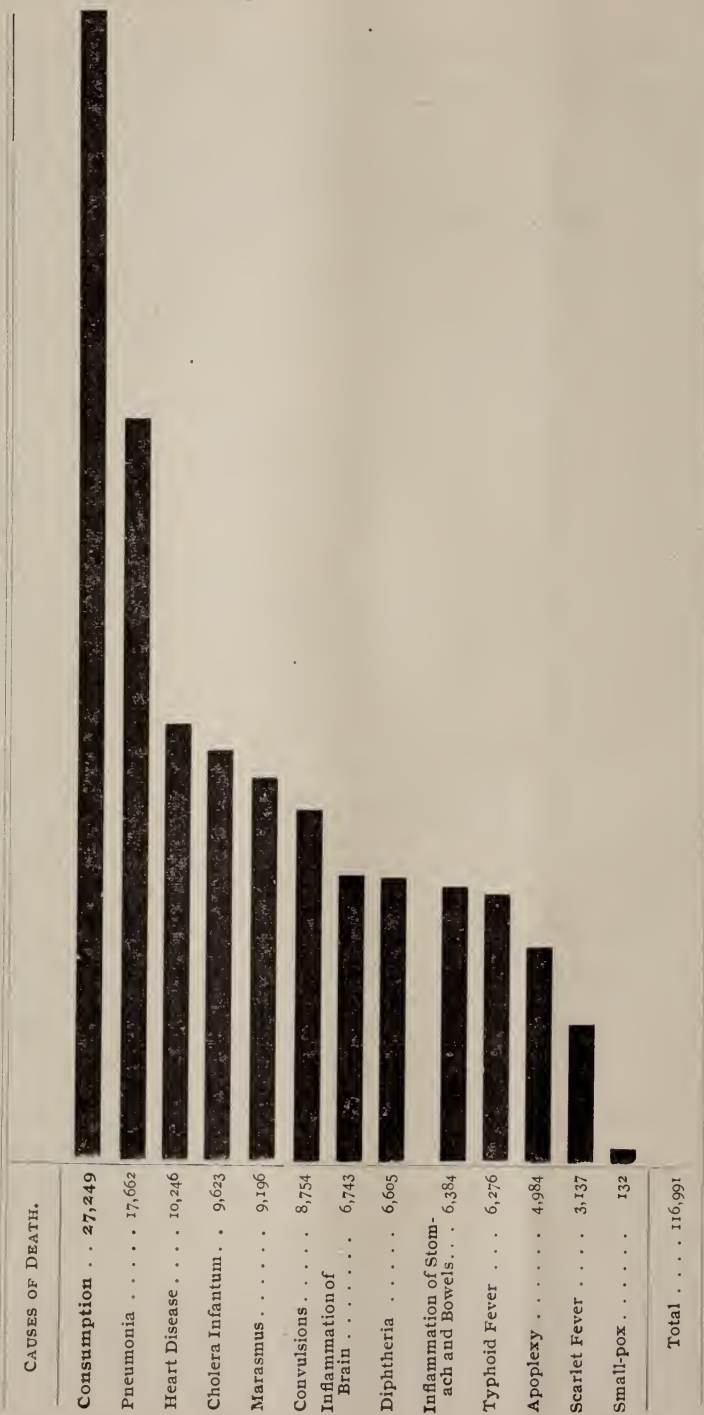
MEANS OF PREVENTING THE SPREAD OF CONSUMPTION.

All cases of tuberculous disease of the lungs (consumption) take origin directly or indirectly from other cases. This is now an established fact. Infection, however, is easily provided against if certain simple precautions are taken.

The chief modes of infection are :

First and foremost, *By inhaling dry and pulverized expectoration.*

DIAGRAM SHOWING COMPARATIVE MORTALITY BY DEATHS FROM THIRTEEN PROMINENT CAUSES OF DEATH IN PHILADELPHIA,
FOR THE TEN YEARS, 1884-1893, INCLUSIVE.



This is apt to occur when an ordinary pocket-handkerchief is used by a tuberculous person for expectoration. When such a handkerchief is opened the dried expectoration is likely to be pulverized and diffused through the air. Thus it may be inhaled by others as well as by the patient himself, who is likely to suffer from drawing disease-germs into portions of lung previously unaffected.

Another and the most common source of pulverized expectoration is the habit of spitting carelessly and indiscriminately, as on the floor or ground. The expectoration becomes dried and mixed with dust, and then is easily carried into the air, and is breathed into the lungs or swallowed. The habit, therefore, is not merely offensive, but dangerous.

Second, *By using spoons, cups, and other articles* of the kind which have *not* been *properly washed* after having been used by tuberculous persons.

Third, *By kissing*.

This source of infection is especially to be guarded against in the case of children.

Self-infection may occur, in addition to the ways mentioned, *by swallowing the expectoration*. The habit is likely to lead, sooner or later, to infection of the intestines, with tuberculous disease.

There are other modes of infection, as, for example, by consuming the flesh and milk of animals having the disease. But this source is less common, and, as prolonged high temperature destroys the germ, if we cook our food (including milk) thoroughly, there will be no risk of becoming infected in this way.

Knowing the channels of infection, we can easily take effective *precautions*.

(1) *The sputum must be destroyed, and must not be allowed to become dry*. A spitting-cup or flask, containing just enough disinfectant solution to cover the bottom of the vessel, should always be used for the expectoration. Out of doors a pocket spitting-flask, such as Dettweiller's, should be employed.

In the house it would be well to use a pasteboard or paper cup, which should set in a china or metallic holder,¹ as represented in the cut. This cup with its contents should be burned at least once a day, but if the expectoration is considerable, much oftener.

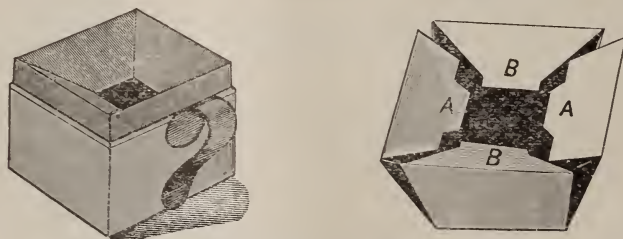
¹ Cup and holder can be procured at the apothecaries. The paper cup can be easily made at home from the original sample.

Pieces of linen or calico about ten inches square may also be carried. These should be used in case of absolute necessity only, and should be burnt as soon as possible afterwards. No piece should be used more than once.

(2) Bed-rooms that have been occupied by tuberculous patients *should be thoroughly disinfected* before they are occupied by other persons, and a declaration or assurance on the point should always be demanded.

If the previous occupant of the room never allowed the furniture, hangings, or carpets of the room to be contaminated with the sputum, there would be little need of this precaution. But as people ordinarily of cleanly personal habits sometimes show a surprising amount of ignorance or carelessness in this respect, the following points should be insisted on :

(a) Carpets, curtains, and bed-coverings should have been exposed to superheated steam under high pressure.



PASTEBOARD CUP AND HOLDER.

(b) The floor and walls of the room should have been properly disinfected. Rubbing with new bread followed by the application of corrosive sublimate solution (a tablet of $7\frac{3}{10}$ grains added to a pint of water) is probably the most effective practical method.

There is no danger of infection from the mere breath of a tuberculous patient. The risk is from the dried expectoration. Danger of social intercourse arises from the neglect of the precaution described.

Fresh air is of the highest importance for tuberculous persons. Hot and stuffy rooms have an evil influence over the disease. Except in special circumstances, the bed-room window should be kept open by night as well as by day.

Note.—The disinfection of rooms that have been occupied by the tuberculous patients, and of beds, bedding, curtains, carpets, etc., will be promptly attended to upon a notice sent to the Health

Officer, City Hall. The Board of Health has erected a most extensive and complete disinfecting plant for the disinfecting of such articles as have been mentioned, and upon notification will send for them and return them after thorough disinfection at a cost merely nominal.

WILLIAM H. FORD, M.D., *President.*

A. A. HIRST, *Secretary.*

It is with great pleasure that we publish this action of the Philadelphia Board of Health. This question is a most vital one, and the conservative manner in which it has been handled is worthy of all praise.

There is only one point to which we take exception: the italicized statement that "*there is no danger of infection from the mere breath of a tuberculous patient. The risk is from the dried expectoration.*" Danger of social intercourse arises from the neglect of the precaution described," may, possibly, we fear, breed a sense of security where danger exists. We are aware of the fact that this statement is in accord with the scientific doctrines of the day, but in spite of science, the editor of this journal has now under observation two cases wherein consumption has been contracted by the wife from the husband, and in both of these cases every particle of expectoration from the husband was thoroughly disinfected immediately upon its discharge, which causes us to think that there might be danger of infection from the breath of a consumptive, the mandates of science to the contrary, notwithstanding.

A Salutory Hint.

"Doctor," said a man who was notorious for laziness in general and slovenliness of person in particular,—"*Doctor, I have tried everything I can think of for my rheumatism,—all sorts of remedies, regular and irregular, change of diet, change of climate, and all, without the least avail.*" After surveying his untidy linen for a moment, the doctor suggested, "*Suppose you try a change of shirt.*"



Microbes on Postal Cards.

Professor Uffelmann, of Rostock, has recently made some experiments which show the readiness with which microbes may be transmitted through postal cards, letters, etc. Among other experiments he infected a letter with cholera-germs, and threw it into the post-bag. Twenty-four hours later the letter was taken out, and the germs were found to be still alive. Among other experiments the germs were found to be alive on postal cards which had been infected twenty hours before. When placed upon coins, the germs died rapidly. A fly infected with cholera-germs was placed upon beef, which a short time afterwards was found to be swarming with germs. A finger was moistened with liquid containing cholera-germs; an hour later, after the finger had dried, it was rubbed on some roast beef, upon which a great quantity of germs were afterwards developed.

Penetrability of the Skin by Microbes.

Dr. B. Wasmuth, says the *Journal of the Royal Microscopical Society*, finds that the healthy, uninjured skin of man and animals is penetrable by micro-organisms, and that the path of access lies between the shaft and the sheath of the hairs, the sebaceous and sweat-glands not allowing the entrance of infection. Experiments were made by rubbing pure cultivations of staphylococcus pyogenes albus and aureus into the skin of the hand and arm with the middle finger of the opposite hand. Staphylococci and erysipelas-cocci were rubbed into rabbits, guinea-pigs, and white mice, and virulent anthrax into guinea-pigs.

Most of the experiments made by the author on himself with the staphylococci appear to have been successful, as foci of supuration, in the centre of which hairs stood, appeared after inunction. Nearly all the experiments made with the staphylococci on animals were failures, but all the anthrax inoculations took. Sometimes the cultivations were mixed with lanolin before inunction, and this vehicle did not seem to interfere with the action of the microbes in any way.

Are American Women Deteriorating?

In the *North American Review*, Dr. Cyrus Edson, of this city, has stated that American women are deteriorating. They do not, he thinks, endure childbearing. Young women who are apparently strong, healthy, and active, marry, and have two or three or more children; in a few years their color is gone, they look old, they are nervous, fretful, easily fatigued, and have changed their freshness and youth for a premature age. They wander about in a gynæcological Odyssey, seeking relief through operations which restore a tear in the perineum or cervix, or are curetted and electrified for a subinvolution, but, strangely enough, they do not get well.

Some such story as this is familiar to many of us; the question is, Does it represent a condition of affairs which is general? Two Chicago physicians have replied indignantly to the contrary. They have collected the histories of all the young families of their acquaintance and assert that in the vast majority the women are sound and healthy.

The question, however, is not to be settled so easily. We do not know how healthy the childbearing women of a generation or more ago were. Miss Catherine Beecher, writing in 1850, said they were a wretchedly feeble and valetudinarian class. As for to-day, only a very large number of observations can furnish a true answer to the inquiry. The statistics of the last census show a decided decrease in the birth-rate among Americans, and this is a rather serious indication of degeneracy. There is also a steadily increasing urban and decreasing rural population. This is not a healthful change for childbearing women. So that altogether it does not seem to us that the Chicago physicians have quite established their assertion that marriage nowadays makes more than it mars the health of American women. The problem is one of extreme importance, for upon it depends the future of our race. In this particular city it has been noted that the girls are larger and stronger than they used to be. In London the same is said to be true, but it is added that the men are not so vigorous. An observant English woman in a recent interview states that American women are not so strong as the English, and she attributes this to the fact that mothers put their babies in boots (high shoes) instead of slippers with straps. The boots develop ankles that do not enjoy walking. This simple explanation of our physical inferiority is almost too good to be true, says the *Medical Record*.

Rapid Eating.

In the *Journal of Nervous and Mental Disease*, Dr. Browning writes as follows: There is a prevalent idea that slow eating is very favorable to digestion. But this is largely fallacious. The important point is not that we eat slowly or fast, but that when we do eat we chew with energy. Of course, where the haste is due to some mental anxiety, this may injuriously inhibit the secretions. Slow eating begets a habit of simply mumbling the food without really masticating it, whilst the hurried eater is inclined to swallow his food before proper mastication. Hence, hurried eating is bad, but rapid mastication is advantageous. It concentrates our energies on the act in question, and hence more thoroughly accomplishes it. Moreover, energetic chewing stimulates the secretion of saliva in the most favorable manner.

These various points are so commonly misunderstood, at least by the laity, that they demand our frequent attention.

The Laws of Health.

The true secret of health and long life lies in very simple things:

Court the fresh air day and night. "Oh, if you knew what was in the air!"

Sleep and rest abundantly. Sleep is nature's benediction.

"Work like a man; but don't be worked to death."

Avoid passion and excitement. A moment's anger may be fatal.

Associate with healthy people. Health is contagious as well as disease.

Don't carry the whole world on your shoulders, far less the universe. Trust the Eternal.

Never despair. "Lost hope is a fatal disease."—*Chicago Medical Times*.

Canned Vegetables.

The Chemical Division of the United States Department of Agriculture has just issued another part of its Report on Foods and Food Adulterants, technically known as Bulletin No. 13. The present issue, Part VIII., deals with canned vegetables, especially with regard to methods of preserving, the preservatives em-

ployed, the character of the vessels used, and the food value and digestibility of the articles. A few words concerning this report may be of use, inasmuch as, owing to the publicity given to it, medical practitioners may be questioned as to their views on the subject. Tin and lead were found, derived from the cans and solder; copper from salts of the metal used for "greening" the vegetables; zinc in some samples of French goods, and sulphurous and particularly salicylic acid, employed for their antiseptic properties. Boric and benzoic acids, saccharin and hydronaphthol were not found in any of the samples examined. Tin is the most common metallic contamination, being present in every can that has been put up for any length of time. Tin-poisoning from the use of canned goods is not often alleged, although Hehner and other experimenters have found stannous hydrate to exercise a marked poisonous action on guinea-pigs and other small animals. Lead is freely used by the packers both in the solder and in low-grade tin plate; but there is little danger of lead-poisoning by the use of canned goods, for tin precipitates lead from its solutions, and lead is not attacked by acids in the presence of as much tin as is found in the tin plate used. There is more danger of lead-poisoning from the sheet-lead tops of glass jars than from the solder or lead of the tin cans. The quantity of copper needful for "greening" amounts to only a quarter of a grain per pound, but much more than this quantity was often found. The temperature required to destroy spores in vegetables tends to disintegrate many of them and render them less attractive in appearance; hence the use of salicylic acid. Doses of one-half to one and a half grammes of this acid have been given and taken daily by experimenters for periods of many months without affecting the system in any notable way. Nevertheless its action on the kidneys is recognized, and in exceptional cases of renal disease its continued ingestion in the quantity present in canned goods may be harmful. In dyspeptic cases, also, the antiseptic may do harm in interfering with the normal action of the digestive ferments.

A trade journal criticises the report for conveying the impression that there is a wide-spread use of injurious antiseptics in injurious quantities, and points with emphasis to the fact that over one thousand million of cans are packed and consumed every year in this country alone and no well-authenticated case of sickness has been traced to them, which could not with equal

force be attributed to the use of similar articles not canned. The chemists, however, do not intend to convey that impression nor to urge a prohibition of the use of copper salts and preservatives; but they claim the right on behalf of the people of being informed by notice on the label of the can whether any ingredient foreign to the vegetable is present. Packers should not be permitted to use these substances without notice plainly given of their presence and quantity, for the purchaser should be accorded the privilege of electing whether or not he will take the doses.—*Jour. A. M. A.*

CORRESPONDENCE.

American Sanitary Association.

Editor of THE ANNALS OF HYGIENE.

Dear Doctor,—Will you kindly permit me to make a statement concerning the American Sanitary Association, which is being organized as a National Medical Society? As secretary, I have received several letters from members and friends of the American Public Health Association, who have in some manner received the impression that our Association aims to rival theirs. This idea is erroneous. I am sure we all appreciate the useful and honorable career of that Association.

Briefly stated, the objects of our Association are, to discourage the manufacture and sale of impure and injurious foods and medicines, and to encourage the introduction of wholesome and honestly manufactured articles of food, medicine, clothing, and sanitary appliances in general.

I sincerely hope that our efforts will meet with the approval of the medical profession, and those interested in sanitary reforms, whether members of the American Public Health Association or not. There is ample field for more than one sanitary association in this country; and there is no reason why we should consider the ground already occupied. I should be very glad to answer any inquiries or furnish any information in my power to those interested.

W. THORNTON PARKER, M.D.,
Secretary.

GROVELAND, MASS.

**Discussions on Papers Read at the Seventh State
Sanitary Association, January 26, 27, 1894.**

Discussion on the resolution of the Hon. Mr. Tewksbury, of Columbia County, in favor of the establishment of boards of health in townships. (See page 223.)

Mr. WAGONER, of Mechanicsburg: Mr. President, under the decision of the Attorney-General of this State, townships, and all parts of the Commonwealth in which there are no organized boroughs, have the right to establish a board of health. That board of health must be established by an application to the commissioners of the county. The commissioners of the county must agree with the directors of the poor, and that agreement must be endorsed by the judge of the courts. The president judge endorsing that agreement, such boards of health can be created in all townships. Now, whether it will be beneficial to create them by Act of Assembly or to use the discretion as laid down in the opinion of the Attorney-General of the State, is a question; and that is the reason I make the motion.

BENJAMIN LEE, M.D.: Mr. President, the opinion to which the gentleman has just referred is, I presume, that which the Attorney-General was kind enough to render in reply to a request from myself in rural districts, as to what authorities should bear the expense of quarantine for information. I somewhat differ from the gentleman in his interpretation of that opinion. I do not understand it to authorize any township to establish its own board of health under the direction of the officers named by the gentleman; but simply that, in case of the occurrence of an epidemic of contagious disease, or even of a single case of contagious disease which the State Board of Health considered should be placed under proper supervision, the State Board of Health could appeal to the officers named, and they would become responsible both for the enforcement of quarantine, and for the expense of such quarantine. If people were unable to provide themselves with the necessities of life, then the county authorities would be responsible, and would make such provision. But they do not provide any such relief as the gentleman thinks, in the way of the inauguration of local boards of health in townships. I am therefore strongly in favor of the reference of this resolution, and trust that it will meet with the approval of this conference.

J. H. MCCLELLAND, M.D., of Pittsburg: Mr. President, it seems to me that it will be necessary to have a committee on legislation after a while, and that all such matters should be referred to that committee. Why not let this lie over until such time as it is decided whether the committee will be appointed or not? I think it can afford to lie over for a little while; and, if it is necessary then to appoint a committee on legislation, it seems to me there are other things to be considered that it might be well also to refer directly to that committee.

Mr. WAGONER: I would just say in reply to the State Secretary that I apprehend the Attorney-General made his decision on that question under what he regards as the general police regulations of the State; and, under

such police regulations, if a township has the right to quarantine in the case of contagious disease, it has the co-equal right to establish a board of health.

But I will accept the suggestion of the gentleman on my left, that a letter of this kind be referred to a committee on legislation. I think, perhaps, in the end that would be wiser.

J. C. HAMNETT, M.D., of Homestead : I wish simply to rise and remark that we are particularly interested in this question. Your Excellency knows the position of affairs at our place, and how we are situated in regard to the township and the borough ; that it is useless for us to have rules and regulations, located as we are, unless the township co-operates with us. I wish that this matter should be particularly noticed ; and not be one of those subjects that is simply taken up and passed by. I would like to have a law passed in some way.

CHARLES H. SAUL, M.D., of Steelton : I am particularly interested in the proposition. There is diphtheria in Lower Swatara township and there is no way of stopping it at the present time. There are now two families stricken, and families in which there are school-children attending one school. I think there should be some provision devised to, as far as possible, give the teacher of that school power to control those children until the disease is over. This particular disease in Swatara township has been taken from this town. I think there ought to be something done immediately to give some persons in the township authority to quarantine, at least to a certain extent, to save other children attending the school.

Dr. LEE, of Philadelphia : Mr. President, I am extremely glad that this question has been brought before the Convention. I desire to say that the very first bill that the State Board of Health drew up and presented to the Legislature, in compliance with the law which calls upon the State Board of Health to present to the Legislature such changes in legislation as it considers to be necessary for the protection of the public health,—I say that the very first bill that the State Board drew was for the establishment of a board of health in every township and in every town of the State. You can scarcely imagine how the bill was received by the members of the Legislature. They could hardly conceive of persons in townships competent to compose a board of health. We presented this measure to two successive Legislatures, to be met with this kind of ridicule.

I do hope this Convention will give no uncertain sound in this direction, so that the legislators can understand that the townships feel an interest in having boards of health, and also that there are men in them who are able to compose boards of health.

Gentlemen contend that the township authorities have the power to enforce quarantine. They have no such power. I particularly put that question to the Attorney-General, and he replied, "The township officers have no such authority ; you cannot call upon them to enforce quarantine. The only authorities in a county, outside of the general authority of the State Board of Health, are the courts, the county commissioners, and the poor directors. The township authorities are limited to their duties as road supervisors and assessors of taxes."

Discussion on the address of Mr. Moritz Lippert, of Phoenixville, on "The Authority and Mission of the Local Board of Health." (See page 121.)

Mr. WAGONER, of Mechanicsburg: Mr. President, the question involves, as I understand it, two heads,—first, the authority, and, secondly, the mission of a local board of health.

As to the authority of a board of health, there certainly can be no question. Certain police regulations have been in existence in the Commonwealth of Pennsylvania ever since its existence, and even antedate the establishment of the Commonwealth back in colonial days. Therefore that cannot be a question. True, the general police powers were invested in the town council, or the city council, or, better, in the select and common councils. When the question came up as to the model ordinance from the State Board of Health,—and, understand me, I do not mean to question the State Board of Health,—but when the question came as to the model ordinance, it was a question with me in the establishment of our board of health whether the town council had the authority, under the existing Acts in the Commonwealth of Pennsylvania, to delegate its police powers. I said no, for the reason that they had not the right, until in the wisdom of the Legislature, and the wisdom of yourself, Honorable Sir, the Act of May 11, 1893, was passed; and there can be, after that act, no question whatever as to the existing legal powers of the board of health now, such as came up under the Acts of Assembly of 1851.

Now, as to the mission of the local boards: it is to preserve the sanitation of a town or of a city; it is to prevent the spread of contagious diseases, whether that spread of contagious disease threatens from an adjoining town or from a distance, and by extending thitherward would bring added sickness and death into that town or city.

Now, the question is how to best control that spread. The only way that a city or organization of any kind from a borough up can exercise the authority under this law is by the Board of Health taking right hold of the question with a firm grasp, and command from the physicians, and from the ministers, and from the undertakers, every one, an exact obedience to their rules and their regulations; and those rules and those regulations must be established in accordance and in harmony and in sympathy with the law as it was passed by the Legislature, and signed by your Excellency on the 11th of May, 1893. And whenever that is done, without regard to fear, favor, or affection, you will find a perfect obedience from the people. But if there is a disposition to excuse anybody from this necessity or that necessity, you will not find any harmony or unity in regard to the arrest of the spread of the infectious or contagious disease. We have the operation in our town of that authority exactly; but, I am sorry to say, exercised upon those people with small-pox that was brought there from Reading; and it was only by the firm hold that we took charge of the cases and quarantined the families of the afflicted in their houses. In cases of poverty we supplied them with funds and bread that we exacted from the town council under the law, and thereby have held the disease in subjection; so it has caused only one death, and that should not have occurred, except from the obstinacy of the patient in refusing to obey the commands of her physician.

A DELEGATE: Mr. President, I will just refer to one thing that I can cordially endorse, and that is that the Board of Health is not simply a committee of the town council, but is co-equal with it, as the judiciary and legislature are co-equal with the executive. We find one difficulty with us,—that the borough had a committee,—a sanitary committee. Now, they seem to regard our board of health as simply this committee; and we had a little difficulty in getting them to understand that we are co-equal with the town council. I am very glad that it was brought to the notice of this assembly, and cordially endorse the views expressed.

Major M. VEALE, of Philadelphia: Mr. President, I want to most heartily endorse all three of the positions taken in the essay in reference to the co-operation of the physician, the press, and the schools. One of the very first things to contend with, especially in large cities,—it may not be so much in smaller ones,—is to get the perfect co-operation of the physician in sustaining the board of health. Now, while physicians undoubtedly, as has been stated, are a body of conscientious, educated, and able men, there is a great deal, possibly, of temptation, where the patient or the family of the patient do not want the case reported,—there is a great deal of temptation, I say, on the part of the physician sometimes not to report a case of contagious disease.

Now, wherever a case is not reported to the health officer or the board of health, there is great danger of that becoming a centre of distribution, and in this way spreading the contagion. A case of diphtheria, for instance,—and many and many of them are never reported unless the physician finds that the patient is going to die, and he will have to give a death certificate. He then is faced with this simple fact, that he must either falsify the death certificate, or else the health authority will know of the fact that the case has not been reported.

Now, it does appear to me that every conscientious physician should with every possible care report every case of contagious disease to the health authorities, and in this way give the supervision to the health authorities, that proper precautions may be taken, where it is necessary that the house be quarantined or the patient sent to the hospital, to be followed by the necessary disinfection and fumigation. It may be said that this is provided for now. But, nevertheless, unless this co-operation of the physician is thorough and perfect and conscientious, this part of the work of the health department cannot be efficiently carried on; it becomes practically impossible. We find that the case with diphtheria, scarlet fever, and small-pox. We have tried to find the particulars of cases, and we have in many instances found that the distribution has taken place because the case had not been reported; and, as evidence of the fact, we learn of the spread of the disease.

Then as to the press. It is a powerful aid;—beyond estimate—of the health authorities everywhere throughout the State. The State board, the city boards, and the boards of boroughs should enlist in every possible way the support of the press, because, after all, this work of sanitation is one partly of education, and very largely so. It is in its nature possibly arbitrary; but in order to educate the people that this necessity exists, you have got to break the prejudice against the arbitrary power of health

authority. As a man is raised and educated in our country, especially a native, to set a restriction over him and have his home liberties taken out of his hands seems tyrannical. Every citizen, of course, revolts at this, until it is shown that it is for his protection and the protection of the community that this power was exercised. They are only going to have it done and submit to it when they are educated up to the facts. Let us show them what the authority is as given by the State to the State board and other boards, and the very reason it is given.

This education has gone on rapidly. It is perfectly wonderful how rapidly. There is evidence here to-day in this Convention that the people are being educated and aroused to the fact. They are conceding the necessity; they are coming to the support of it. Let us in every possible way give all the information we can through the press, and continue to educate them.

Then as to the public schools. They are not one of the least important considerations. It is always a great temptation on the part of parents, wherever there is contagious disease in the house, to conceal it as far as possible where they have other children. They do not want to keep them out of school. Possibly they are poor, and very few years can be given to the children for going to school; and on omitting a few recitations they cannot make them up. Possibly there is an examination about to come off, and if the children are kept at home, then they lose their position, perhaps, in the class. But every scholar attending and every teacher throughout the State of Pennsylvania should be informed of the fact that no child should come from a house in which there is a contagious disease unless there is notification by the board of health, or the health officers, or the attending family physician; because this is one of the greatest sources of contagion and infection of communicable disease. A child goes home from school and is taken with a contagious disease. The parents say, "Where under the sun did the child get the disease? It has been nowhere. We have had it nowhere where it could have taken this illness." While the fact is, when it is ascertained, that it sat alongside other children in school, and close to one that came right from the house of a family where the disease existed. And this is true to a great extent with all our contagious diseases.

I think the three points taken in the essay—the press, the doctor, and the public schools—are entirely of too much importance to be overlooked. They should be considered in the most serious possible way; and, if they are considered in the proper light, and the attention given to them that there should be, you will find that they are three great means to assure the prevention of contagious disease; and through all of them very much can be effectively done.

Dr. SAMUEL A. SULOFF, of Patterson: Mr. President, I would like to ask a question. Has a board of health power to prohibit children from going to school if they are not vaccinated, when vaccination has been requested? Or, if an organization has requested vaccination within a reasonable time, and requested a second time? This has been done with us; and then at the first of the year, or at the second term of our school, we asked the principal to prohibit those children from entering a school that were not vaccinated. The more law-abiding citizens, and the more settled people, though many

of them were poor people, had their children vaccinated; but a few stubborn people kept their children out of school, and are fighting us to-day on the ground that we have no power to compel vaccination. I ask this body if, after examination, any one has found that we have that power?

Mr. WAGONER, of Mechanicsburg: Mr. President, so far as Mechanicsburg is concerned, I will answer the gentleman. We compel vaccination, so that children who would not be vaccinated could not attend the public schools, and are not attending to-day. Furthermore, they cannot, until they are vaccinated, or the proper authority under the board of health otherwise orders. Nor can they attend the public schools if contagious, infectious, or communicable disease has existed in their families as placarded, for two weeks after that placard is removed from the house. And we positively will not allow it. We will stand suit at law, and resist under the law, rather than have it done. Just as I said a moment ago, the only way to exercise the authority given is to reach out with a strong arm, and take hold under the law, as you were advised to do when authority to establish your board of health was given.

Dr. A. M. PIERCE, of West Elizabeth: If the town council fail to pass your ordinance, or fail to support you when you attempt to compel vaccination, what shall you do then? For instance, the town council fail to act upon it. Then what would be our mode of procedure?

Mr. WAGONER: That is very simple. You can exercise the right by having issued a *quo warranto*, and compel them to do it.

The GOVERNOR: The law is that "the board shall make and cause to be published all necessary rules and regulations for carrying into effect the powers and functions with which they are hereby invested, which rules and regulations, when approved by the borough council and chief burgess, and when advertised in the same manner as other ordinances, shall have the force of ordinances of the borough, and all penalties for the violation thereof, as well as expenses necessarily incurred in carrying the same into effect, shall be recoverable for the use of the borough, in the same manner as penalties for the violation of borough ordinances, subject to the like limitation as to the amount thereof."

Dr. LEE: This is one of the most perplexing questions which has confronted the State Board of Health since the passage of this law. The case is one which has occurred in a number of instances. I took occasion to confer with the health officer of Philadelphia, to whom we have just listened with so much pleasure on that subject, and to ask him his opinion as to what could be done in such an instance. He said, undoubtedly the board of health can appeal to the courts, and the courts will compel the borough council to adopt an ordinance. The adoption of an ordinance is a part of the transaction that the idea of the law passed by the Legislature contemplates. Consequently a borough council cannot take the view stated, that it may appoint a board of health, and not adopt an ordinance suggested by the board. It may possibly exercise some discretion as to which of the regulations proposed it shall adopt. I will not pretend to deny that. But that it can be compelled to adopt some regulation is unquestionable.

The only decision which we have yet been able to get, which bears upon

this point, is as follows : In one town, quite a considerable borough, the burgess refused to sign the ordinance which had been adopted by a majority of the council. The State board was appealed to ; and on the authority of the Attorney-General we recommended the board to go ahead and disregard the burgess, because the burgess has not the veto power, and, therefore, the majority of council was competent to pass an ordinance without the burgess's signature, notwithstanding the wording of the law. However, the board of health was not satisfied with that. They appealed to the courts, and the courts sustained the board of health and the majority of the council. The burgess was not only compelled to sign the ordinance, but had to pay the costs of the suit ; and he was not allowed to resign the position of burgess, as he wished to do out of spite.

Mr. JOSEPH SHAW, of Norristown : Mr. President, I regret exceedingly that the delegate from our place, who should be here to enter into the discussion, is not here. I am sure he would be interesting and instructive to all of you, as he has been to me. There are some questions that have been propounded, which have not been quite answered, as I understand ; and one on a subject that we had on hand in Norristown. We drew up an ordinance. I was one of the health officials, of course ; but not the one who drew it up. It was in conformity with the State law, and it was presented to the councils for their approval. I presume, if we get that back again, that we will find they have approved of it in some form. But the provisions and regulations are so emasculated that they will be utterly useless to the board. I should not say "utterly useless," but they are very badly emasculated.

Now, I would like to hear a little further on that point, from some of those who are conversant with the matter. And I have a few other questions that I would like to ask. I hope this school will be kept open.

Dr. J. E. RIGG, of Wilkinsburg : Mr. President, as a representative from one of the boards of health, a question has occurred to me. As I understand, a board of health can submit certain rules and regulations, and ask council to adopt them. The council has the authority, as I understand it, to adopt them or refuse them. But I do not think a council has any authority to in any way modify or change those rules and regulations. When they go back to the board of health, they are reconsidered and resubmitted. Action is taken by council without alteration or change. I believe there the councilmanic authority ends. We took that position in our council, that they had no right under the act to modify or amend rules submitted.

In regard to the education of the people, on that point I would like to add a special endorsement of the public schools as a means of educating the people. In our community we have received more benefit through that than through any other source. We have had the support of the physicians entirely ; we have had the support of the local press ; and we have also had the support of the public schools, and through that medium we have been brought in direct contact, almost, with every family. Almost every child knows some one in the school that has had some contagious trouble, some sickness that has resulted seriously. They carry that fact to their parents. They post their parents on the health of the community. They require the facts from the teachers, require them to read the rules and regulations once

a month in the school, if the time is due when they are to be read; and they seem to take special pains to keep the teachers posted and reminded about these points. In a number of families we have been able to receive the support and help of the parents through the influence of the children. Now, the position taken by the paper on that point was well taken, and should be carried out by the State Board of Health.

Mr. A. C. WALLACE, of McKeesport: Mr. President, in regard to the vaccination of pupils attending schools, the Board of Health of McKeesport has thus far been successful, in less than two years, in having 3000 pupils to comply. They go in the line of compulsory education. The pupils are allowed to attend school, but they must comply. If not, the parents are prosecuted. In order to make the system a success, and a complete system, the board have suggested to the authorities of the schools that they furnish the principal of each school a registrar to record the name, the age, the residence, and the time of vaccination of each and every pupil. This was held under consideration, and to be referred to their solicitor to give them a written opinion as to whether it is their duty to keep the registration or that of the board of health.

P. R. KOONS, M.D., of Mechanicsburg: Mr. President, I do not wish that our board shall be considered the model board of health; but we took a firm hold, and meant business from the start; and we have scarcely any opposition. In regard to physicians not complying with the law and reporting their cases, we compel them to report. Where they do not comply, we issue a summons, and bring them before the board, and want to know the wherefore; and then, if they do not comply, we fine them. We have been forgiving one or two of them, who promised that if they were not fined they would do better hereafter; but with the understanding that if they did not report to the board, we would fine them and collect it the next time. Since then we have had scarcely any opposition. Then we have compelled the undertakers to come before the board; and, upon their pleading for mercy, we forgave them.

J. B. TWEEDLE, M.D., of Weatherly: Mr. President, the ground was so well covered by the paper, and by Major Veale, that I wish to say but a few words in regard to the physician, who was alluded to as one of the particular factors. You know that to the physician the temptation is simply very great. For instance, take the case of a hotel-keeper. A case of diphtheria comes into his family, and the man will use almost every means in his power to induce you not to report it. He says, "If you do, you will ruin my business." He appears to think it will not amount to much to the board, or the community; but it will be a great benefit to him in a financial point of view. You all know that physicians are human, and that temptations are sometimes very strong; and now and then it places the physician in a very peculiar position, and it is very difficult to stand this strain. He feels like favoring his patients, but does not want to criminate himself. So, I say, he stands in a very peculiar position; and needs the sympathy and the support of the public to give him the backbone which will entitle him to retain that sympathy. Therefore, he wants the support of that other element, the press, to educate the public, by showing them that the physician is simply doing his duty; that he is not acting, so to say, through spite-work, or as a personal matter when he reports these cases.

Then when it comes to the subject of a private funeral : you know that in some parts of the State a funeral is the greatest gala-day that they have ; you know that in some communities they commence several days in advance with their preparations for entertaining, and they will call in their friends and neighbors for six or eight miles around to have a grand occasion, commencing to cook, say at nine o'clock on the day of the funeral, and continuing this extra work through all the funeral ceremonies until the middle of the afternoon. The temptation is very great for the physician to say,—though he knows the reverse,—or rather not to say, that it is a contagious case, as the funeral then will have to be private ; for then he deprives them of one of the greatest occasions of their lives, and one which the public, if not the family, have been looking forward to and watching for a month. And so the necessity, I say, of educating the community,—which can only be done through the press,—so that they will have proper sympathy for the physician, and back him up in his efforts to do what is right.

PEMBERTON DUDLEY, M.D., of Philadelphia: Mr. President, the statement that has just been made does not apply only to the back-woods of Pennsylvania.

I want to call attention to the subject of the public schools, and ask if Mr. Gray or Dr. McClelland, of Pittsburg, will not tell us just how they manage that matter in their city? We had something of that kind reported to our State board some years ago ; and it seems to me that they have a very fine method, if I understand it correctly, by having cases of contagious disease in scholars' houses reported to the teachers of the public schools,—this by the board of health,—so they can be put on their guard.

Mr. CROSBY GRAY, of Pittsburg: Mr. President, the board of health of the city of Pittsburg requires, under law or the Act of Assembly under which it works, that physicians report to it all cases of infectious or contagious disease, mentioning the name of the patient, the disease from which he suffers, and his location. Each day during the week a bulletin is prepared in the health office, a copy of which is mailed each evening to the principal or other person in charge of each and every school in the city, public, private, parochial, or otherwise. This is for the purpose of notifying the school authorities of the existence and exact location of the cases, in order that they may prevent the children from those infected families, or from families residing in the same house in which these cases may be located, from attending school. Unfortunately the requirements made of the principals or school authorities to prevent the attendance of these children is merely a regulation of the health bureau, and is not a law,—that is, it is not a law passed either by the Legislature or by the city councils. I very much doubt—in fact, I have but little hesitation in saying—that it could not be enforced by due process of law. Our councils will not pass such an ordinance. But the effect has been that in nearly every case, so far, the school authorities have acquiesced in the request, or regulation of the bureau, and have conducted themselves accordingly.

There is one question that has been raised by Mr. Lippert in his paper as to the authority of local boards of health, relative to the attendance of children from infected families at school. That is the question as to what should entitle a return of these children to school ; not only those who have

been personally affected, but others of the family. It was suggested by Mr. Lippert, I think, that this should only be permitted upon certificate from the attending physician that there is no further danger from that infection. While I have the highest regard for the members of the medical profession, yet it occurs to me that that is treading upon dangerous ground. Physicians are like other men. They have many views,—some of them, I am compelled to say, very peculiar ones. There is a vast difference of opinion among members of the profession as to when the danger of infection has ceased.

Now I want to submit to the members of the State Board of Health especially, as well as to the balance of the members of this Convention, whether or not it would not be much better to fix a certain period of time, be it long or short,—and the longer the better,—from which there could be no appeal, as it were. Fix your time; then you are comparatively sure; and it will relieve the physician of a great deal of trouble and annoyance. I want to submit to Dr. Lee, and other members of the State board, as well as others, whether or not that would not be the practical thing, and better than to leave it to the discretion of the physician?

Professor A. WANNER, of York: I am a friend of the physicians, and submit to the physicians,—particularly when sick. But these questions may be looked at from another stand-point than the physician's,—I mean that of a different calling, or hence I should not intrude upon your time,—different by reason of my connection with our schools as city superintendent. There are a few things that may prove a little suggestive, and there is one which has been already presented to the Convention by the gentleman who preceded me with regard to a fixed time. Our Board of School Control have designated a certain time, and they require that that time shall have elapsed after convalescence, and that the pupils coming from infected families shall present their certificates stating the fact that the required time had elapsed after convalescence, and after the house had been thoroughly disinfected, and so on, so that apparently protection has been secured. Yet notwithstanding all that regulation, the superintendent has found out that these conditions were not complied with, and I have resorted to this expedient: In the beginning of the year each teacher is furnished with a blank sheet; it is headed with the teacher's name and grade of the school,—for instance, John Jones, City, Primary, No. 1. Then we have a place for each pupil's name, to be placed there in alphabetical order; opposite thereto the pupil's age, the parent's name, and place of residence. That sheet is filled out by each teacher in the beginning of our school-term. It is forwarded to the superintendent's office and is bound. That constitutes our directory. The health officer reports to the city superintendent daily all cases of contagious disease. The directory is consulted, and all of the teachers who have schools in that section of the city are notified. First, however, the directory is examined, and the pupils from any of those families are specially located, so the superintendent knows just what schools they attend. The teachers are informed, and it becomes then the duty of two people to see that those regulations are complied with,—the superintendent and the particular teacher.

I speak of this arrangement particularly because it has worked both ways. Teachers have been informed of cases of contagious disease, and

have at once notified the superintendent, who immediately goes to the health officer and requests an investigation; and that has been one of the reasons why we have secured a report from physicians which is very much more reliable than was the case before we resorted to the directory system. In different instances the superintendent has only started the investigation—has barely started it—before the report is received from the physician. It is attended with much more promptness and certainty than if the two modes were not employed together.

Mr. EDWARD S. WAGONER, of Mechanicsburg: Mr. President, under the head of Supervision of Local Boards, I would like to ask a question hypothetically, and appeal to any gentleman who represents a board of health on this floor, and who is a lawyer, or the lawyer of the State Board of Health, if he is present. It is just right in the path of the gentleman who has just taken his seat. Suppose that it is reported by a physician after a case of scarlet fever, or a case of small-pox, or such a disease as is considered contagious or communicable, that after a certain number of weeks that patient has passed the period when the infection can be communicated, can the local board of health be justified in continuing the quarantine on that house? I ask this question of some one present who is a lawyer,—Can any local board of health go back of the physician's certificate and say a case must be held in quarantine? Unless they have that power, in case of a conspiracy, as between that physician and the family, or from sinister or mercenary purposes, and unless that placard is removed, and immediately, from the house under quarantine, somebody may be made liable for damages, it seems to me.

Major MOSES VEALE, of Philadelphia: I would answer that so far as the City of Philadelphia is concerned, the physician's certificate is taken as a mere matter of business. The ultimate decision rests with the health board.

Discussion on the paper entitled, "Sanitary Engineering; or, The Prevention of Preventable Diseases." (See page 143.)

Major M. VEALE, of Philadelphia: Mr. President, it seems to me that the subject of the last paper is one of the most important and the most difficult possibly to deal with. But I hope that before this Convention adjourns it will take this matter up most thoroughly, so that when the Legislature meets, the proper committee can go before that body with a bill prepared that will assist this measure throughout the entire State. The water-supply we all concede to be one of the most important of all the sanitary problems. We concede, further, that it is the most difficult to deal with. As Mr. Murphy has said, in the city of Philadelphia we are drinking water out of that "great public sewer." Schuylkill water possibly is as good water as there is in the world, if it is not in any way polluted; but being polluted, it then becomes detrimental to public health.

I think that possibly he is some little mistaken in one thing, that the death-rate in the city of Philadelphia is the highest in typhoid. The returns made on the 1st of the year, I think, do not quite carry that out, although they are bad enough. But I believe that typhoid arises from the polluted water-supply more than from any other source. And this has become such

an important question that I do hope the entire Convention will take such an interest in it that it will result in some kind of action on the part of those here assembled. That we may include not only the city of Philadelphia, and the cities and towns and boroughs along the water-supply of the Schuylkill, but the water-supply throughout the entire State; that there may be legislation that will aid our cities, towns, and boroughs in having a pure water-supply, if it is possible to attain it. There are other departments of the State whose co-operation should be enlisted, such as the Department of Forestry and the Department of Agriculture, to assist the Health Department, and this Health Convention, in trying to attain pure water. The suggestions in the paper, if they are taken up and carefully considered, it occurs to me, cannot other than result in the most beneficial measures with respect to this water-supply.

Mr. HOWARD MURPHY, C.E., of Philadelphia: Mr. President, I thank Major Veale for opening this discussion. But I think I am right in regard to the death-rate from typhoid fever in Philadelphia,—with the exception of Chicago. I think Philadelphia led, and then Chicago showed the highest death-rate. Of course, in figuring those death-rates the severe local epidemics would not furnish figures giving a fair comparison. The reference was made to the Schuylkill River, simply because it is a noted case,—not in reference to Philadelphia especially; but the fact is that the river below a large source of its pollutions supplies some of the most important boroughs of the State of Pennsylvania,—boroughs, which in certain points, as population and importance, are well entitled to be considered cities.

Mr. CROSBY GRAY, of Pittsburg: Mr. President, the cities of Pittsburg and Allegheny, and surrounding cities and boroughs, are very much interested in this question of water-supply, and are now discussing it. I desire to propound a question to Mr. Murphy,—if he feels like answering it. It is a practical question, and one which is being discussed in the western part of the State. I should like to know—and I believe that many others present would like to know—what, in your opinion, filtration will do towards assisting in furnishing a pure water-supply?

Mr. MURPHY: Mr. President, I think that all experience has shown that filtration—proper filtration—will very greatly improve the water-supply. It diminishes the percentage of contamination without doubt; but I have yet to know of any filtration system which will ultimately—that is, which will continuously, I should say—keep disease-germs out of water; and where the filtration alone is relied upon to do that, it is very doubtful if any filtration system will positively do it, even from the very first. With engineering works of that character, it is quite usual for them to operate well at first; but to deteriorate after the same continues. For instance, in the intermediate Dewart system of filtration for sewer deposit, the plan has been carried on satisfactorily for a short—but not long—time; for after the lapse of some time the influent to the reservoir is about as bad as if it had passed through no system of filtration at all. That is what they are being a little scared about in the city of Reading. They proposed to do something in that way with the sewage there; but how it is to be done successfully we do not know, and they do not know themselves; because they have had no plan or system matured for doing it, I understand. But whatever is done, whether

chemically or otherwise, the water is bound to increase in impurity until near or quite the character of the Schuylkill itself. But our friends at Reading are a little more independent than the people below them, because they get their supply from the Maiden Creek, and will not likely suffer much from the pollution of water until they rely almost entirely upon the Schuylkill. But I heartily approve of the filtration idea, though it cannot be relied upon to exclude disease-germs.

Perhaps members of the Convention have noticed the condition of the water from the Susquehanna, at Harrisburg, at this time. (A specimen of the water was then exhibited.) I presume it is due to culm emptied into the stream miles above. I made an examination some time ago, and certain matters were corrected; but the water seems to have returned to the same condition again. Those particles of culm, or coal, introduced make the water very unpleasant, and, to some extent, injurious, because they are almost sure to be irritating to the intestines. Systematic filtration would greatly improve this water; and so as to the disease-germs; but you will take a great many of them in at any rate. I do not know of any system that may be relied upon positively and continuously.

PEMBERTON DUDLEY, M.D., of Philadelphia: Mr. President, so far as my knowledge goes on the subject of filtration, I think the last system is that the charcoal filtration must be constructed of such dimensions as to allow of no more than seven gallons of water to pass through each square foot of filtration surface in twenty-four hours. I made a calculation not long ago, with the result that such a filtration plan for Philadelphia would require to be about one square mile in extent. Again, the fact of this slowness of percolation, as insisted on by our investigators upon the subject, has always made it appear to us, when we have thought about it, as very expensive. But there is in connection with this mere mechanical filtration also a process of oxidation going on, and the filtering part is simply a means of subjecting the animal matter in the water to the action of the air; because these filters act best if they are open and exposed to the access of oxygen. So it is not filtration so much as oxygen that accomplishes the result. It seems to me that we might find means to accomplish this by much cheaper and more economical and more practical means.

WILLIAM H. FORD, M.D., of Philadelphia: Mr. President, I do not think there is a particle of doubt that filtration, upon a grand scale, is entirely practicable. We have the experience of cities on the continent of Europe, such as Berlin, and, recently, Hamburg,—which, by the way, through the remarkable epidemic to which it was subjected, has learned a system of filtration which has proved to be entirely satisfactory. The system which has been adopted in Berlin, and been tested for a number of years, is the ordinary filter-bed, composed of broken stone of different sizes, and topped off with sand, and in the accumulating of a filtering medium; for the most essential part of it, strange to say, is a slimy material that deposits over the sand,—a sort of gelatinous material that develops upon the surface; and so long as that is there, the filtration is sufficient. The experience of Berlin advises a test by skilled officers, and a test every day,—they using a gauge made for the purpose.

They are very abstemious in the use of water. According to the esti-

mate, from information given, thirty-five gallons per head per day was supposed to be sufficient, including that for manufacturing; whereas, in our cities, it has recently become very much larger. The people want to use the water, and use it freely. Of course, there is something in that. In Philadelphia, last summer, 150,000,000 gallons per day were being used, or 150 gallons per head. Surely that is extravagance. To filter that vast amount of water would make it costly. Consequently I might say that filtration, if it be done on a grand scale for our large towns and cities, is almost impracticable, on account of expense.

Then there is another thing. As Mr. Murphy has properly said, if filtration be used, it must be watched over with the most scrupulous care, in order to make its usefulness constant. It is not enough to construct an apparatus to-day, and let it run down; but the most important part is after the apparatus has been constructed, and that is a most strict care of all its parts. Otherwise it is a snare; it is a mischievous guide which leads into difficulty.

Now, the wiser plan is to prevent the pollution of water. What is the use of allowing our natural streams to be polluted, and then expending immense sums of money to take out what people are carelessly and uselessly putting into it. Of course, for a temporary expedient, something must be done. We can resort to the boiling of water, as done in our own city; and it is cheap and practical and safe. It seems to me that the people of this Commonwealth, particularly the members of this Convention, the representative sanitary authorities, should league together in a determined effort to bring about some legislation, or some factors that will, in the near future, put a stop to this indiscriminate and murderous pollution of our streams. It is an evil; it is a crying evil; and we want something more than discussion. We want action! And it is eminently proper that a body of gentlemen, like we have represented here to-day, should start some action in this direction, or, at least, give their assistance,—their official aid in bringing about measures to suppress this crying evil.

The PRESIDENT: What has been the result of filtration by scrap-iron or iron filings?

Dr. FORD: So far as I know, a great many plants have iron filings or spongy iron. A material has recently come into use in England, called petrolia, which is said to be exceedingly useful. The iron aids the oxygen; and then it is supposed there is some destructive agent in the iron, which destroys the microbes and bacteria. But I believe the use of stone broken up in various sizes, and sand, the two of proper thickness, with the subsidence of the material upon its surface, is practically one of the best that can be put into operation, and probably as cheap as any; it may be cheaper.

JAMES H. HARLOW, C.E., of Edgewood: Mr. President, when I saw in the programme that Mr. Murphy was to have a paper on this subject, I immediately recognized that it came nearly in my own line; and I am one of the committee to examine the water-supply near Pittsburg. One of our members, Mr. Matson, has prepared statistics, which I have on a diagram standing up in the front corner. As you see, it gives the existence of typhoid fever, and its relation to the water-supply. It is a pretty bulky thing. I did not make it for this Convention; but having it on hand, I brought it, taking my chances whether it should be used or not. (The diagram having

been opened up.) Those black lines show that the water-supply is taken from a large drainage area, without any filtration or improvement in the water-supply. The red lines show the filtered river-water,—a very small drainage-area. Some of those figures have now changed their places.

You all know that during the past eight years the Massachusetts State Board of Health has been paying considerable attention on the line of intermediate filtration; which, as Dr. Dudley has said, is largely a chemical action of the microbes in passing through; because they only filter the water twenty hours out of the twenty-four and allow the air to do the other part.

Among the lower typhoid death-rates you notice the City of London, 1.37. London filters to-day about 140,000,000 gallons of its consumption, and it has only 1.37 against Allegheny's 12.07, and Philadelphia's 6.03.

Now, it seems to me, from the weight of all the evidence that we have been able to gather during the last six months, that filtration is the coming method for drinking purposes. I have a letter from Mr. Mills, of Massachusetts, in which he says that since the introduction of filtration, the lowering of disease-germs has been very marked. The time of observation has not been long,—since September,—but for the last two and a half months the percentage was two as against fourteen, as the average of the five previous years. I will admit that the time was too short, but it is just as they predicted beforehand; and so far as that evidence goes it should have a great deal of weight; for I cannot conceive of anything like that by as cheap a process; and it is well worth trying, I think.

Now, the discussion this morning was on the carrying of disease, as I gathered it, by one person carrying it to another; and we were very much stirred up over it.

A year or so ago the State Board of Health found one case of small-pox in Pittsburg, and that was reported all over the country; and that was very properly done. But here is Pittsburg losing 200 or 300 a year by typhoid fever, and it does not stir up one person. Chicago in 1890-91 and 1891-92 lost something like 1700 by typhoid. Of course, the Fair going on had something to do towards increasing it. In July, 1892, I think, the intake was completed there. In the year 1893 the death-rate from typhoid was 712,—in other words, so much less by the extension of that intake to purer water. Thus the expense to Chicago saved over 1000 lives in one year. While I never like to say, speaking of a man's life, that it is worth \$1000, still using that as a sort of standard or as a sum we have agreed upon, 1000 lives mean a million dollars; and it only takes about three years to pay for the whole work. Take Philadelphia; there are probably 600 deaths annually from typhoid in that city. In my estimation, there is no question that they could improve their condition, if not entirely do away with the disease in that city. The principal, taking the 600 as a basis, would soon pay for the improvement, to say nothing about saving the personal feelings of those who would otherwise be victims of that dread disease.

LEWIS H. TAYLOR, M.D., of Wilkesbarre: Mr. President, in regard to the question that was stated here a few minutes ago, by the speaker who has just taken his seat, or the gentleman from Philadelphia, who has said it is practically impossible for Philadelphia to filter its water, or for any

large city to do so, because it is a matter of expense ; if it is not impossible for London, with its immense population, to filter every gallon of water that goes to its inhabitants, it seems to me that it is not impossible for a city like Philadelphia, though it may use a larger amount of water per inhabitant per day. In the city of Antwerp they take their water from a very foul stream, where they have all the sewage of Brussels, and the sewage from two other cities in the opposite direction,—for they take their water-supply from both places,—and the liquid is foul to look upon. They filter by use of iron, and then through filter beds. They use both processes, and it comes out perfectly clear and wholesome. There is no objection to using it. They are making constant experiments day by day to ascertain the efficiency of the filter-bed. I see no reason at all why Philadelphia should not do that, or why any other large city of this Commonwealth should not do it.

We talk a great deal about the pollution of streams ; and we should do everything we can to prevent their pollution. But streams are the natural highways ; they are the natural drainage systems of a country. For Philadelphia—and I simply cite Philadelphia because it is a good illustration—to expect all the people living up the Schuylkill River to spend their time and money to purify the water that is taken to Philadelphia seems to me out of place. It has an immense population, and it has a wealthy population, and it is a great city, and it should purify the water it takes from that stream. It can be done, Mr. President, without any extravagant cost. At Antwerp, by this iron process and by filtration afterwards, the cost is only eighteen shillings per million gallons per day. That is not such an extravagant sum to pay for this, when we think of the extravagant sums that we pay every year in loss of life by typhoid fever and kindred diseases. The map presented a few minutes ago was a forcible illustration of this ; and why should Philadelphia, Pittsburg, and Allegheny not have a pure water-supply?

Vienna was placed the lowest on the list, at 8 per cent. ; and yet I know that a very few years ago Vienna took its water-supply from the Danube River, and the death-rate from typhoid fever was immense. They do not filter the water now, because they have a very pure supply coming outside of the city from the mountains, quite reaching the snow. Since that pure water-supply was introduced it has fallen to the lowest on the list.

I am sorry I did not get in in time to hear the paper ; but, from the discussion that has taken place, I understand the drift of it. It seems to me that the point to be aimed at in all our large cities should be the purification of the water-supply. We should make every effort to prevent the pollution ; but entire absence of pollution is absolutely impossible.

WILLIAM H. FORD, M.D., of Philadelphia: I do not wish to be misunderstood, or to give a wrong impression. I believe that filtering is an efficient means of purification ; but what I meant to say is the enormous expense of introducing filtration in Philadelphia, when the *pro rata* is something like 150 gallons per head per day in summer time,—less than that, of course, in winter time,—is a complete barrier to the carrying out of that system. The plant for a single basin in Philadelphia costs over \$1,000,000 ; and you know we have many of those basins.

Mr. HOWARD MURPHY, C.E., of Philadelphia: I would like to make one or two remarks. I entirely agree with Dr. Ford, that filtration is an exceedingly good thing. I simply meant to say that I knew of no instance where it could be relied upon as being perfect. The drinking water of a family, where there is doubt about purity of water, in the first place should be boiled in order to kill the germs which are in it, and then filtered so as to make it more pleasant by removing any boiled particles in the water which would be disgusting, if nothing else.

Dr. Ford has referred to the excessive use of water in Philadelphia; and that excessive use of water is what makes the drainage question so difficult. About three gallons *per capita* is enough for drinking and cooking purposes, apart from bathing; and if only that amount were used, or any reasonable amount,—and, of course, I do not mean to exclude the bath,—we would not have so much difficulty in solving the water and drainage problem, and the sewage of domestic establishments could then be very readily disposed of, because it would not be so largely diluted. About three or four gallons of water is about all that ought to be required to flush a closet for ordinary use. But when it comes to extending that amount, and having to dispose of the liquid matter, and to dispose of 150 gallons per day for each person, the question becomes a very difficult one. Consequently we must come to this with some misgiving, unless we can bring about only a moderate dilution of sewage; and, I think, some day we will come to a separate system of water-supply, for there is an immense amount of water used for manufacturing, and for other purposes than domestic and drinking. That for domestic use, and similar purposes, would require a comparatively smaller supply. But at present people are not educated up to that. Even if practicable it would not be desirable to do so, because the ignorant could not be prevented from drinking that which was only intended for manufacturing use.

Mr. JAMES H. HARLOW, C.E., of Edgewood: The gentleman to my left spoke about the rivers acting as large sewers. You take some of our sewers, like the Allegheny. With the length of our rivers, we cannot protect them, from a hygienic stand-point, all along the many miles of their course. Follow that river up into the State of New York, 225 miles from Pittsburg. If anything is thrown into the water there, it is beyond the reach of this Commonwealth, and we cannot do anything for that. We must purify our water.

I have in my house a meter, which has been running for about two years. It was on for two or three months without being known to any of the family. I found for family use twenty gallons *per capita* per day was about the amount. Then I made a calculation of what percentage of that went into various parts. Sixty-five per cent. of it went through the water-closet; 22 per cent. of it was for bathing purposes; 7 per cent. was for laundry purposes; and 6 per cent. for culinary purposes.

As Mr. Murphy said, the water used for purely domestic supply is comparatively small; but with Philadelphia using 150 gallons per day *per capita*, and Pittsburg 220 during the past year, there has been simple waste; and it is but a question of how soon we will have to come to a detail system for the whole town. In Pittsburg our manufactories use immense quantities; and

especially along the borders of the Allegheny and Monongahela a duplicate system of mains could be laid without a very excessive amount of cost. The other manufactories, remote from the lower lands, I would let them take their water from the regular water-supply.

PRESTON WILSON, M.D., of Clearfield: I would like to ask Mr. Murphy a question. I was directed so to do by the board of Clearfield. The borough of Clearfield has a system of paved streets. At the junction of the streets they have iron gratings. Those iron gratings are connected with the sewers. There is no trap between the grating and the sewer. I think those sewers run to different water-closet connections. When this system was laid in our town there was a good deal of protest made against it, and the engineer who then passed upon it said it was sufficient. Since then, having been made a member of the board of health, and having the good of my town at heart, I—and the other members of the board also—would like to know if there is such a system, and understand that system of paving and draining; whether such a system has a good connection; and whether it is good work to connect with a sewer without a trap at the corner of a street?

Mr. MURPHY: Mr. President, if there was a trap in that open man-hole, it would not serve its purpose. The trap would prevent it ventilating the sewer. What you refer to, probably, is the system of open man-holes through your town. About that there is a difference of opinion. Ventilation by open man-holes is held by some to be a good system of ventilation, if it is universal and adequate,—that is, if the whole sewage system is kept thoroughly ventilated by these man-holes the whole time. It is considered that it is a system of ventilation, and preserves with comparative purity the whole sewage system; but, as they state, once you introduce the open man-holes into the community, and any are closed, all the accumulations come through the other man-holes. I consider that a very injurious practice. I have come to the conclusion that the only proper system of ventilation is through an available stack or stacks; and in addition to durability of construction, the stack or stacks ought to be for that express purpose.

Discussion on "Sanitary Sins of Omission and Commission in our Common Schools," by Samuel T. Davis, M.D., President of the State Board of Health of Pennsylvania. (See page 175.)

Mr. EDWARD S. WAGONER, of Mechanicsburg: I desire to ask the gentleman who has just taken his seat, who has read that most excellent paper on this matter, and I most heartily agree with him on the Smead system of heating, and the dry system of closets, a subject to which I have given some attention,—I wish to ask where he has found that to be a failure?

Dr. DAVIS: I think in Lancaster. Dr. McCormick, I believe that house on West Chestnut Street has been defective, has it not, when the wind was in certain directions?

D. R. MCCORMICK, M.D., of Lancaster: The system has been found to be a failure wherever used.

Mr. EDWARD S. WAGONER: I believe Mr. Lippert, from Phoenixville, is present. I think they have had the same experience with the Smead system,—that when they first introduced it in the new school-building it was a failure. But the failure was owing entirely to the improper erection

of the chimney by the architect. Now, we have the same difficulty in Mechanicsburg to-day with a school that cost \$50,000. The last session, as well as the first session that the house has been occupied, the system has not been giving satisfaction, and it is because the chimney was not built high enough to give the draught. In the borough of Phoenixville, when they erected their chimney the requisite height, they found the system to work splendidly. And so, Dr. McCormick, you will find that failure was from your authorities making some similar omission.

D. R. MCCORMICK, M.D., of Lancaster: There was no failure so far as the plans of the building were concerned. The great fault was that it combined in one, heating and ventilating and the dry closet system. It was supposed that there might be a return system, for we found that the air was taken from under those closets into the school-rooms. The board decided not to introduce further that or any other system that combined the dry closet and the heating system as well. We do not think it is wise to take those chances.

Mr. J. WARREN MARTENIS, of South Bethlehem: Mr. President, we have the Smead system in South Bethlehem, and while I have not heard of the system doing great damage, yet some of our people contend that it has been the cause of some disease. The last building that was erected there had that system introduced into it. Persons living in the neighborhood had some diphtheria, and they laid it to that system in that school-house. The physician, who was then the chairman of the health committee, said in his opinion it was that system that caused this diphtheria. In one building that was erected previous to this, there was one room where the scholars, on occupying that room after it became heated, would become sick, and would have to stay at home for at least two days in the week. That was the only room in that building. Outside of this complaint there has been nothing said, I believe, that is derogatory to the Smead system of heating.

There was one point that Dr. Davis did not speak about when on the subject of heating,—the heating of the building with the hot water,—which I think he probably did not mention because he had not time. It is more uniform, because the hot water goes to the top of the building, especially in a private building, and disposes itself from the top down, without heating the first and second floors too much, so the third does not get the proper amount of heat. Thus on the upper floor you do not have a needlessly cold air, and you heat on the first and second floor, as well as the third floor, without difficulty; and they are substituting hot water for steam.

Professor DANIEL FLEISHER, of Troy: Mr. President, the subject of school heating is one I have always been interested in, as I have spent almost thirty years in the school-room, and had some practical experience in the matter of observing the evil effects of impure air on the scholars. I have no particular remedy to propose for district schools; but I think some of the methods of ventilating and heating that have been suggested here are excellent. We use in our school at the present time the Smead system, so called. I do not think we can expect any system, no matter how admirable the system of itself, to act properly unless there are some brains used in the management of the system.

Now, in this Smead system we have found sometimes that there was

a return current through the closet, and with that return there would be trouble if we did not do our duty in this matter. So long as we followed the directions laid down by the inventor of the system, or those who put it in, we had no trouble. I think there will be trouble in any system as long as so much depends on the teacher, or so much depends on the party who has control of the heating apparatus. We can make the best system a failure. What we need is teachers who are sanitarians, or with more knowledge upon this subject of ventilation. We need to have better judgment how to use the system.

Professor A. WANNER, of York: I desire to add to this discussion just an opinion or two in reference to the practice in regard to the careless use of text-books. The danger of this free text-book law is one that ought to be prevented. In fact, there are several dangers where there should be prevention. One is this: that in the distribution of supplies no pencils ought to be collected under any circumstances. They ought to be placed in the hands of the pupils just as they would use their own property. That feature need hardly be discussed. But in some places they have a habit of gathering up the pencils and giving them out the next day. As we all know, boys are in the habit of putting pencils in their mouths.

Another matter. The text-books ought to be covered at the beginning, if possible, and at the end of the year the covers burned. When a man is affected with contagious disease, we burn his clothes that have been used in any way; and so we ought at least the covers of books from the hands of pupils from families where there has been diphtheria or scarlet fever, or any disease of that sort. With us, when the books have been brought in contact with scholars of that sort, they are burned. The pupils are not permitted to have them again.

PEMBERTON DUDLEY, M.D., of Philadelphia: Every old woman has a sure cure for chronic rheumatism, and from gynæcology on through every other specialty, every specialist has his ventilator. I have mine; and I want to impress and emphasize, if I can, the gentleman's remark who spoke last but one (Professor Fleisher), that whatever system is employed, the teacher ought to be thoroughly drilled in its use and management.

Some years ago I was called to examine a number of the school-rooms in Philadelphia. I found that most of the teachers were in complete ignorance of various parts of the apparatus over which they had control. Many of them would talk about the warm-air registers and the cold-air registers; and when asked the question, they would reply that the warm-air registers were to conduct the warm air, and the cold-air registers to conduct the cold air; and I found they were justified in that supposition, that the cold-air registers did admit cold air. I found one teacher who occupied a room in which there was a sort of trap at the doorway just above the entry, and she always insisted on keeping that open to let out the foul air; and when I explained to her that she was letting out the purest air, I had difficulty in making her believe it. She thought the warm air was the foulest. I found where the warm air was brought in, by that way the foul air was expected to go out of the house, requiring the air to move at right angles,—that the foul air was going or went through a current of warm air in order to get out,—a fault of construction, as a matter of course.

I, in one instance, found a school where the teacher by opening one of her windows was making the air within more foul than before. She said, "Will you make me believe such stuff as that? Why?" I replied, "Because you let out your purest, cleanest air, and let in your foulest air." And I showed her. I took a sample of air in that room, and analyzed it for the purpose of determining its vitiation. The result was 56 parts of carbonic acid in 10,000. The children were jammed into that room like sardines in a box,—no desks; no room. The children on the ends of the benches had to brace themselves to keep from being crowded off; and sixty-six cubic feet of air space for each scholar. Ultimately that place was abandoned as a school-room, and was converted into a beer-saloon, which is the proper use for it.

Now, instruct your teachers how to manage the heating and ventilating apparatus,—how it is to be applied. Whatever methods you employ, teach your teachers how to use them.

Mr. W. W. FRANTZ, of Waynesboro: Mr. President, in the matter of the physiological effect of vitiated air on respiration, the consensus of opinion among those learned seems to be that there is little danger from any pathogenic microbes existing in the air, as compared with the excess of carbonic acid, and the deficiency of oxygen. It is also a well-established fact, as has been shown more particularly by the experiments of Sheldon Smith, as published in the *Journal of Pathogeny and Bacteriology*, Vols. I and II, that there is no permanent pathogenic effect from the breathing for a considerable time of air with an excess of carbonic acid. It is true it produces what might ordinarily be termed symptoms of disease; but they are transitory.

In the matter of ventilation the name of one system has been mentioned here. The names of others might have been as appropriately mentioned. But all seem to lack the one thing necessary: the combination of heating, or the temperature of a room, preserving the barometer at the point marked, and the thermometer at a point agreeable; and at the same time in combination with that taking care that the excreta shall be put into a crematory furnace, or shall be made harmless by some other designated process.

I believe for myself that the most perfect system of ventilation is the system that admits around the school-room, by the simplest possible current, outside air, and takes the carbonic acid and does with it that which nature does for us out of doors,—transmutes that carbonic acid from a gas into matter. I believe if we copy that, and get rid of the carbonic acid, we get rid of the glassy eyes, the dull headache, and the drowsiness that in ordinary schools so depress and destroy the health of our children.

H. H. WHITCOMB, M.D., of Norristown: It seems to me that the destruction of school-books is one of the most important things that we should attend to in our schools. At our board in Norristown we require all school-books to be destroyed where infectious and contagious diseases occur. The use of pencils, such as has been stated, ought not to be allowed; nor slates. Slates are used,—you know how. It is one of the most offensive things, and disgusts; yet it is almost impossible to prevent that. The children should have a slate apiece, and a pencil of their own.

There is a much simpler system of heating, and simpler system of building than my friend, Dr. Davis, has spoken of. The heating would cost about \$150 to introduce for 300 children, or for a private family. In our town they are using the Smead system; and, I suppose, it must be a success, as they are introducing it in all the buildings that they are erecting, and have been erecting for years. Not hearing any complaint about it, it must have been at least successful.

There is one other building in which the air is more foul than the school-room. That is the apartment in which sanitary conferences generally meet. The atmosphere in this room is very foul now, I have no doubt; and I am not surprised that some are suffering more or less from headache, as I am.

Mr. M. G. LIPPERT, of Phoenixville: I do not wish to protract the discussion unnecessarily; but I just want to mention, for the benefit of school men, that the sooner slates are done away with the better for the children. In Phoenixville we dispensed with slates long ago. We use paper only.

Professor GEORGE G. GROFF, M.D., Lewisburg: I have found that the different systems of ventilation all fail where the janitor has no brains, and that disease-germs can be introduced by the best systems that we have. I would like to mention one other matter that prevails in our town; and I think the school-teachers should receive the censure. It is the overworking of the younger children. The feeble children are overworked. There is a tendency, year by year, to pile work on the children. As one science after another is developed, it is emptied into the curriculum of the school, and the result is to make it too difficult. Not every child is affected. One child will throw off the work; but the brain will be affected.

Then another thing is the duration of the recess and noon hour. Sometimes all the work of the day is crowded into one session, and that for children 12 or 13 years of age. I would never submit to my children attending such a school. When a boy or a girl approaches maturity, they can do the work in one session; but not when the children are so young. It is wrong.

Now, there are some things with reference to hygiene for this representative body of boards of health to consider. I wish there could be, not only a committee on school hygiene, but a school sanitary official, in every township and every borough and city in this Commonwealth. We will reach it in time. I think the day is not far distant when we will have a sanitary officer in every school district, as well as in every town and city of the State. It is necessary. The boards and teachers do all they can for the children; but in certain directions the teachers and boards are not instructed in sanitary matters as they should be.

There is one other subject which I should bring before this meeting of sanitarians; and that is the sanitary and hygienic instructions which our children are receiving in the schools of Pennsylvania. In general, the hygienic instruction that our children are receiving to-day is something that was described by some one at one time, whom I cannot name, as defining hygiene as "rules laid down by dyspeptics for well people to live by." That is the instruction they are getting very largely; but productions like

Dr. Hunt's cannot be used in the schools of Pennsylvania. The one written by Dr. Lincoln, formerly the secretary of the Health Department of the American Social Science Association, cannot be used in Pennsylvania. You cannot get a real standard book on hygiene introduced in Pennsylvania, except contrary to law. It must have one form or set of ideas on the destructive effects of alcohol on the body; and I cannot but tell you that much of the instruction given in that form is very largely nonsensical. It is not based on fact or truth at all, very largely; and our children are being instructed in this way. Our children are compelled, from the little tots of 5 or 6 years of age, to receive daily instruction on these subjects. A lady approached me two weeks ago, and told me she had used the same little primer every day in the week for years, until she and the children were sick of the thing; the same little primer which in two or three weeks' time they could have mastered the substance of; and that is going on apparently without redress. In reference to sanitary science there is, probably, nothing published like Dr. Lincoln's; but distinguished men are ruled out of the schools, and we are forced to have a lot of nonsense imposed upon us.

J. G. SHOEMAKER, M.D., of Phoenixville: One thing further in reference to school-rooms. The action of the chalk-dust from the black-board on the children's throats, and particularly on the school-teacher's. It seems to me that something should be done in reference to the prevention of the use of this article. I find in our schools in Phoenixville that every teacher is suffering from chronic sore throat. Possibly it is due to ill ventilation; but I think much of it is due to the dry, irritating chalk, and the dust from the black-boards.

Professor A. WANNER, of York: No class of people can better mould the sort of instruction that should go into schools than you. If the present instruction in physiology and hygiene is not good, let a recommendation come from you. I am a school man, and am willing to accept all that has been said. I am sorry that this onslaught did not begin years ago.

Mr. ED. S. WAGONER, of Mechanicsburg: There was a time in the history of Napoleon Bonaparte, when he feared that woman, Madame de Staël, and he went to her and asked her, "What shall I do to make better the French people?" And she replied to him, "Educate the French mothers." When you can educate the people to elect common-sense Directors, then you can get more common-sense school-teachers. When you can educate the people to elect people of education and experience from the body politic, you can have both male and female school-teachers of sound judgment and discretion, and have them right along, instead of taking the young and callow men and women who have not common sense, and from whom you cannot expect physiology and hygiene, or anything else.

J. E. RIGG, M.D., of Wilkinsburg: We pay a great deal of attention to certain parts of the body; and it is upon my mind that we have been neglecting the nerve forces,—the power that is to keep the body going,—the power that takes years to restore. How often we have seen children in our public schools go on through the high schools and seminaries and colleges and universities, and about the time they finish their education, before the mind is matured, they are broken physically, and then they go off on a sea-voyage or elsewhere, and in time return to go through life a physical

wreck. I tell you that this Convention would do more good if they took care of the nervous system than of anything else. We need such educated people in the school-room. I have had several friends broken down under it, and I know what it means. A young girl finishes her education at the age of 18 or 19. What mature thought can she have, and what consideration can she give to her studies; and what has it cost her? During the age of 15 or 16 the whole nervous energy is needed in another direction. Why tax them with studies, and load them down with things almost worse than death? I hope this Convention will take some decided action with this phase of it. Our people are ignorant of this. You can talk with people about air and water; and yet talk to them about holding their children from college and seminaries until a year or two older, and they say, "Oh, no; they must go through like the others."

Discussion on the paper, "Powers and Possibilities of Local Boards," by Major M. Veale, Health Officer of Philadelphia. (See page 168.)

Mr. JAMES H. HARLOW, C.E., of Edgewood: Mr. President, a short distance above the intake of the Pittsburg water-supply, and quite a number of other water companies, including the Allegheny, during the last fall there has been erected a distillery. The off-fall has been used in feeding cattle and swine. The place where they are fed is quite large, and the numbers many. Most of the refuse from this feeding-place goes into the Allegheny River, and 300,000 people are liable to have more or less of it. I called the attention of the chief of police of Pittsburg to it, and asked him what he could do to prevent the introduction of this into the river. He replied that it was eight miles above their intake, and being beyond the limits, he could not do anything. One of the authorities of the city of Allegheny had written before on the question, but no reply. Now what can be done?

Major VEALE: The pollution of a stream of water is a common-law offence, and indictable; and if any one is caught polluting a stream of water, the remedy is a very easy one,—simply make information, and have them arrested and tried for the offence.

Mr. HARLOW: Either because the city of Pittsburg does not want to go to that trouble, or from some other reason with which I am not acquainted, nothing of that kind is done; and the other cities do not do anything.

Major VEALE: It is the right of any citizen of Pennsylvania to prevent the pollution of any public stream.

CHARLES BRADLEY, M.D., of Norristown: I noticed in the paper read that certain rules and regulations made by the State board may be enforced in any borough and place where the rules are neglected. I received a communication from that office, and at the same time a couple of specimens of by-laws. In our borough some of these rules seem to be inapplicable,—that is, we are hardly able to pass such a law as having cesspools and water-closets 150 feet away from the wells where the lots are only 130 feet deep. I looked over the rules made by the State Board of Health, and thought if those rules, or certain of them, were amended where necessary in some cases, that we might accept them, as by having the cesspool pits cemented.

I was requested to ask the State Board of Health if that law would be enforced whether or not the necessary amendment to the ordinance was

made. If so, we may as well adopt that. We were well aware that our town council would perhaps not approve of it, because they would see the difficulty in the way. I had planned, though, to take the rules adopted by the State Board of Health into the council-room,—the model rules prepared for us,—and suggest to them that they might as well adopt one, as to have the State Board of Health adopt them anyhow. We wish to inquire whether the rules of the State Board of Health will not be carried out sufficiently if we adopt them as far as possible?

Major VEALE: Under the law, the State Board of Health can intervene in all cases where there is no board of health existing, or where the board of health does not effectually carry out the law. The rules and regulations referred to as a model, I will refer you to Dr. Lee to answer.

Dr. BRADLEY: Your rule is that the cesspool must be 150 feet from a well; otherwise it must be declared a nuisance. You give out the model and make the same rule. No, it is impossible when the lots are only 130 feet deep.

Major VEALE: Dr. Lee will answer that. I am not a member of the State Board of Health. I am simply giving you the law relative to the State Board of Health. The rules and regulations are adopted by that State board.

Dr. LEE: I propose, Mr. President, to make the address for which I am put down in this programme simply a colloquy between myself and members of this conference, and I will ask the privilege of answering that question in connection with my own paper.

The PRESIDENT: If it is the pleasure of the board, we will take up Dr. Lee's paper next. (See page 210.)

Mr. H. T. BRESSLER, of Schuylkill County: There is one question I would like to ask. It was touched upon this morning, in regard to where boroughs and townships adjoin. A gentleman has said that the local boards have the power to enforce a quarantine against all outside the borders. The town which I am from is situated in a township, and three small towns surrounding it. Do I understand that we have the power to prohibit people from those towns coming into that town in case they have a contagious disease in their midst? Their only point of supply is situated in our borough. It is their means of communication with the railroad and the outside world. Can we prevent that? To-day contagious disease prevails in two of them. That is the one question that the board of health that I represent would like to know,—their power in regard to that matter?

Then, also, in regard to physicians notifying the board of health relative to contagious diseases? All the physicians in that section ride in their carriages; they practise in the adjoining towns. Can we compel them to notify us of contagious diseases in the adjoining towns, as well as the contagious diseases through our town? If we have the power to declare a quarantine, we should have a right to knowledge from there through the physicians. If we do not, we have no direct knowledge of it. How can we best protect ourselves from disease across an imaginary line where the towns and borough adjoin? We have only an imaginary line separating the two. How can we prevent the spread of the disease from the towns to the borough?

Major VEALE: You have no power to compel the physician to report a case of contagious disease that does not occur within your jurisdiction; but you have power to quarantine against any one coming within your jurisdiction who has a contagious disease, or is affected with it, or is coming in contact with those who have. The carrying out and directing this in detail, and the mode of acquiring the knowledge of those who are sick outside, is an entirely different subject; but it does not come within your power to control the physicians.

Mr. BRESSLER: If you please, can you tell how we can arrive at this knowledge?

Major VEALE: This is a matter of detail that I cannot tell you.

Mr. BRESSLER: That is just the matter with us. To go a little further, two or three weeks ago an epidemic of scarlet fever broke out at a place called Rausch Creek, twelve miles from us, and near another small town known as New Lincoln. The people of New Lincoln were anxious to prevent the spread of the disease, and they applied to the commissioners and the poor directors; and, as matters go, the policy seemed to be to wait until the people were all dead before they did anything. Two cases of small-pox occurred with us, and without law we formed a sort of curb-stone quarantine. We provided the provisions for the family, and succeeded in preventing the spread of the disease. Now, sir, here you cannot go across the line and quarantine a house. Our people can go over, and we can fine them for going over; but it does not prevent the spread of the disease among them. We are practically tied up. To find some way to counteract that is what we want.

Major VEALE: Of course, the simple fact of your power to quarantine against disease coming in, or to quarantine against disease going out, is perfectly obvious. Now your means of enforcing these things is an entirely different question; it is, of course, what you will have to deal with. I am speaking of the power of the board of health as to quarantining against disease, and quarantining against people going out and coming in. Your mode of carrying that out is a question of personal detail entirely, which, of course, I cannot answer, not knowing all the facts.

SAMUEL T. DAVIS, M.D., of Lancaster: I suggest to the gentleman that if he address a communication to the secretary of the State Board of Health, he will receive instructions to furnish a petition signed by a certain number of citizens, and there will be no trouble to abate all such nuisances by the State Board of Health.

S. C. SPAULDING, M.D., of Shenandoah. I live in a town situated somewhat as the gentleman's to my right; and as a member of the Board of Health of Shenandoah, where physicians have reported cases existing outside the town, I am not going there to interfere. We have nothing to do outside of the borough of Shenandoah. The only remedy I can see for it would be the forming of boards of health in those towns, and other sections of the Commonwealth in which there are no boards of health existing; and I agree with Major Veale that there is no other remedy but to apply to the State Board of Health.

Mr. M. G. LIPPERT, of Phoenixville: We in Phoenixville have opposite us, on the other bank of the Schuylkill, a village called Mont Clare. They

have had some trouble with diphtheria there lately ; and as the intercourse between that village and Phoenixville is very intimate, I felt a little concerned about it ; and I applied to the State Board for information as to voluntary health associations, and the secretary kindly sent me some copies of a paper which he read at a sanitary convention some years ago. With that paper I interviewed some of the citizens of that village, in order to interest them in such an association ; and I think I have succeeded in arousing an interest, and that the citizens will now form such an association. Dr. Lee, of the State board, suggested at the same time if such an association should be formed, the State board would be quite willing to depute some of the members as State inspectors, with power to quarantine. I think if the gentleman would succeed in arousing the interest in those towns, he might be able to succeed in forming the kind of association to which I have referred.

JESSE C. GREEN, D.D.S., of West Chester : As this is the time to ask some questions, or at least questions are being asked, I will state that I was requested to ask this body with reference to the paper we have just had, where the statement was made that the boards have authority to enter houses, and, where there was a communicable disease, to destroy the property in order to prevent the extension of it. What I want to get at is to know what compensation will be allowed to the owner of the property ? where the money shall come from ? and are we authorized to pay it ? In other words, it seems to me : You enter a house where a person is poor ; they are unable to pay anything. You destroy considerable property in the house. How is that person to be compensated for the destruction of the property ?

The PRESIDENT : The next paper after Dr. Lee's is on that very question, "To what Extent should Compensation be made for Losses sustained to Protect Communities in Cases of Contagious Diseases ?" by J. H. McClelland, M.D., Ex-President of the State Board of Health of Pennsylvania. (See page 147.)

PRESTON WILSON, M.D., of Clearfield. I would like to call the attention of this body to a matter that came before the board of Clearfield. We found in the borough of Clearfield that our difficulty was not in ourselves so much as it was in coming in antagonism with the town council. The Act of Assembly provides that before the commencement of the fiscal year the board of health shall make an estimate of the sum that they want for the coming year, and submit it to the town council ; and that the town council shall give to the board of health what they deem necessary. We were organized in July, 1893. We have not received a cent from that date to this. We presented an estimate to the town council, and stated to them what our wants were. We have examined all the different districts that belong to our town, and submitted our estimates to them, and we only asked them for \$300. We told them that we believed we could keep the town of Clearfield, with 3500 inhabitants, in the pink of condition for \$300, because we have the finest of water systems, and we aim to have a good sewer system. We have the electric light, and a steam plant which heats the whole town, practically ; and so far as the preventing of disease is concerned, it is reduced to a minimum, and our death-rate is practically nothing.

I think you will bear me out when I state that the deaths last year were not over ten people. That shows a pretty low death-rate, I think.

Now, what I want to bring before this Convention is in the way of something that we shall present to the President by way of suggestion for further legislative action for protection,—and an Act similar to that of 1885, perhaps, for the State Board of Health, will do. It seems to me that the boards of health ought to have this limitation on their powers removed, and that they should be an independent body, just as the State board is, as to the manner of the expenditure of the money. The State board, in the manner of the expenditure of its money, is accountable to nobody. It simply renders to the Auditor-General, and to the Governor of the State, a statement of what was paid out by that board during that year, not exceeding \$5000.

The Board of Health of Clearfield, as every other board, should be the judge of its own wants. Now, whether for the stamping out of diphtheria or scarlet fever, or whatever it may be, the town council can simply say, "We deem it not necessary to give you that amount of money." I say that this limitation should not be put upon the boards of health. I wrote a communication from our board to be presented to that body only last week; and they have not given us anything. We could not pay now for ten cents' worth of disinfectants with borough money; but for the sake of the health of our town we went to work and bought them, and everything necessary, and charged ourselves with them. This in order to prevent disease.

I think that is a proper question to bring before this body. You see the practical operation of it. A boy is dying from diphtheria. There is opposite the best house in town, near the principal hotel, a quantity of stagnant water lying. The only way you can remove it is to have the borough build a drain. We cannot build the drain; it is for the borough to build it. Now, when we ask for an appropriation, we put ourselves in antagonism to the borough; and, therefore, we ought to be a body independent of a borough council, as the school directors or the supervisors of a town, having the right to lay a tax for our own needs or for our own wants, and to collect it.

S. C. SPAULDING, M.D., of Shenandoah: Being a representative of the local Board of Health of Shenandoah, I agree with the gentleman who has just taken his seat. On the 18th of August, 1893, the board was organized. Afterwards we had a meeting. We sent a committee of three before the town council, asking for an appropriation. We came to the conclusion that an appropriation of \$500 would not be any too much. They granted it. As soon as the appropriation was granted, we purchased a badge for the health officers, and we purchased some blank forms and other things that were necessary for the board. When we presented the bill for the badge, they refused to pay it. There is no person who has not resided in a borough since the organization of the local boards of health that can realize for a moment the troubles and trials and uphill work that a board has to contend with.

[TO BE CONTINUED.]

IN MEMORIAM.

Death of Dr. John H. Rauch.



THE death of this distinguished sanitarian removes a prominent figure from the stage of American medicine. A native of Pennsylvania, his active career was passed far from the home of his boyhood; but, like a tired child at set of sun, he came back at the close of his stormy and eventful life to lay his weary head upon his mother's breast in the last, long sleep. His resting-place on the summit of Mount Lebanon overlooks the lovely Lebanon Valley, whose broad fields and wooded heights it was his delight to scour in his student days in search of botanical treasures for his herbarium. It was thus that he acquired that thorough knowledge of botany which enabled him while still a very young man to fill the chairs of materia medica in the Rush Medical College and of materia medica and medical botany in the Chicago College of Pharmacy. His first field of practice was at Burlington, Iowa, at that time a larger town and far more promising business centre than Chicago, and to his efforts the State of Iowa owes many of her more important institutions, such as her Geological Survey and State Medical Society. He was also among the earliest members of her State Horticultural Society, and one of its first presidents. He was a man of too enlarged views, and possessed of too much public spirit, to be content with the ordinary drudgery of medical practice, and the mere accumulation of wealth had no charms for him. The natural sciences, on the other hand, strongly attracted him.

We find him in the very first year of his practice devoting much patient study to the relation of ozone to the processes of disease, and at the same time inaugurating a movement for the care of sick and injured sailors and boatmen on the western lakes and rivers, which resulted in the establishment of hospitals of the Marine Hospital Service at Burlington and Galena in 1853. State Medicine was then unheard of, and lectures on hygiene formed a part of the curriculum of no medical college, but his

natural instincts impelled him to the study and development of preventive medicine.

When the war broke out he at once offered his services to the government, and as medical director made a careful study of camp and hospital hygiene, receiving the brevet of lieutenant-colonel in recognition of his distinguished services. To attempt even to briefly summarize these would occupy much more space than can be devoted to this entire notice. Suffice it to say that he was present at the first battle of Bull Run as a spectator, being driven off the field by the Black Horse Cavalry with bullet holes through his linen duster. He was at once appointed brigade-surgeon under General Augur, and served in the defences of Washington. Becoming medical director in the Army of the Potomac, then under the command of General Pope, he participated in the second Bull Run fight. In 1863 we find him medical director of the Gulf Department, and a member of General Franklin's staff. He accompanied General Banks on his somewhat disastrous Red River expedition, and was present at the surrender of Fort Hudson. The last year of the war found him in charge of the military hospitals at Madison, Indiana, and Detroit, Michigan.

At the close of that eventful struggle he returned to Chicago, and soon became identified with every progressive movement in that rapidly-developing city. Mainly through his efforts a board of health was established, of which he was the energizing spirit. His reports on the "Drainage of Chicago" and on the "Chicago River and the Public Parks" indicate how much that city owes to him in early pointing out where her sanitary weakness lay and the means whereby its dangers might be averted.

His life at this time was one incessant contest with those who were engaged in the pollution of the Chicago River, notably the pork-packers and proprietors of slaughter-houses and distilleries, men with almost unlimited pecuniary means at their command. He, however, won his fight and drove them out of the city. No stronger witness to the absolute honesty of purpose which characterized his efforts at this time could be desired than the fact that one of the most touching messages of condolence received by his family after his death was sent by one of the most prominent of those whose schemes he thus thwarted. By simply shutting his eyes at any time during that period, he could undoubtedly have secured an independent fortune. But his sturdy "Pennsylvania

Dutch'' ancestry forbade the thought of any such venal dereliction.

After the terrible fire of 1871 he had the entire sanitary charge of the camp of 80,000 homeless beings, and, small-pox making its appearance among them, he enforced vaccination of the entire number at the risk of his own life, and thus prevented what would otherwise have been one of the most fearful plagues of modern times.

The State Board of Health of Illinois owes its existence principally to his efforts, and as its president and secretary, he is best known to the world of medicine and science, although as an early and prominent member of the American Public Health Association, and of the Sanitary Council of the Mississippi, he achieved most honorable distinction.

The great work of his life, however, was his determined contest for the elevation of the standard of medical education in the United States and the banishment of ignorant, unprincipled, and criminal pretenders to the medical art from the State of Illinois. His labors in this direction were herculean, and they were persisted in at the risk of his life, which was often threatened. What the entire American Medical Association failed to effect by resolution and declamation through a series of decades, he accomplished in as many years by the simple expedient of establishing a standard of medical acquirement in the West to which the colleges in the East were compelled to conform. His services, not to the State of Illinois only, but to the whole valley of the Mississippi during great epidemics of yellow fever, small-pox, and cholera, were of the greatest value. His management of such emergencies was marked by personal fearlessness, determination, and at the same time a rational conservatism. He displayed his profound sanitary knowledge as much in forbidding quarantine unnecessarily established by local municipalities in moments of panic, as in enforcing it when circumstances demanded it. To him was due the inauguration of a system of inspection of immigrants in transit on trains by means of which an epidemic of small-pox, which had persisted for years in some of the Western States, was speedily brought to an end.

The last public service in which he was prominent was as medical director of "Camp Lowe," on Sandy Hook, during the prevalence of cholera in New York Bay in 1892, where his experience in previous epidemics of that disease made him peculiarly useful.

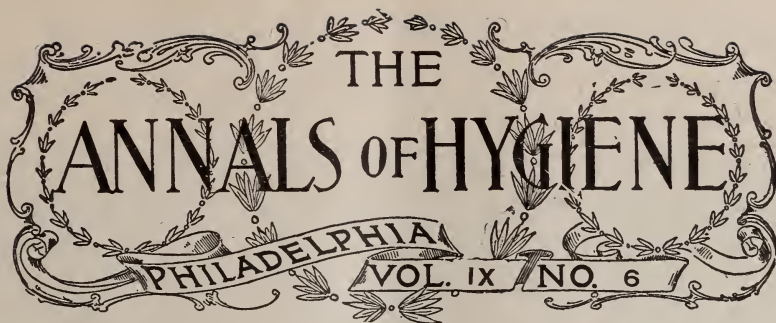
His interest in the sanitary progress of his native State was deep and active. The State Board of Health of Pennsylvania owes much to his sagacious advice. It was in grateful acknowledgment of such assistance that he was elected a few weeks before his death the first honorary member of the newly-organized "State Associated Health Authorities of Pennsylvania."

The confidence which was felt in his sound judgment, in the city of his adoption, was shown by the fact that the Commissioners of the World's Columbian Exposition constantly sought his advice as to the hygienic features of that colossal enterprise, and appointed him individual judge of the sanitary exhibits. It was a somewhat curious coincidence, and one which bore testimony to the fact that death alone ended his activities, that just as the writer was leaving to attend the obsequies, the mail brought the announcement of an award to the State Board of Health of Pennsylvania, with his signature appended to it.

His life was one of unselfish devotion to the higher interests of his fellow-man. His ability and his achievements in sanitary science were recognized in Europe as well as in this country, so that the following resolution adopted by the Medical Faculty of Lebanon was amply justified :

"*Resolved*, That by the death of Dr. John H. Rauch, the medical profession in the United States, as well as in the whole civilized world, has lost an eminent sanitarian, who devoted the most of his active life to the interests of public health, on many occasions imperilling his own life in infected camps and cities to ward off the dread infectious diseases, cholera and yellow fever, and prevent their entrance into this country or to limit their spread."

BENJAMIN LEE.



COMMUNICATIONS.

Modern Disinfecting Apparatus.

BY WILLIAM H. FORD, M.D.,

President of the Philadelphia Board of Health.



DISINFECTION—that is, the destruction of infectious material—is absolutely necessary to the successful management of contagious and infectious diseases. This practice must start at the very beginning of the disease, and be carried on incessantly to its very termination, in order to prevent infection of the air and of things in contact with or in the vicinity of the sick person. Of course, in such diseases as variola and scarlet fever, it is almost impossible, during the continuance of the disease, to prevent emanations from the body from contaminating the immediate surroundings, but even in such cases much can be done to lessen and confine infection by a judicious regulation and management of the sick-room.

After the termination of the disease, the most thorough and effective disinfection of everything that may by any possibility have come in contact, either directly or indirectly, with the sick is imperatively required, in order to prevent the further spread of the seeds of contagion. By the neglect of this precaution disease is spread in the household, and from family to family, thus constantly multiplying the foci of contagion, and often giving rise to an epidemic. This result often follows, notwithstanding the best-intended efforts to destroy infection, for the reason that the means

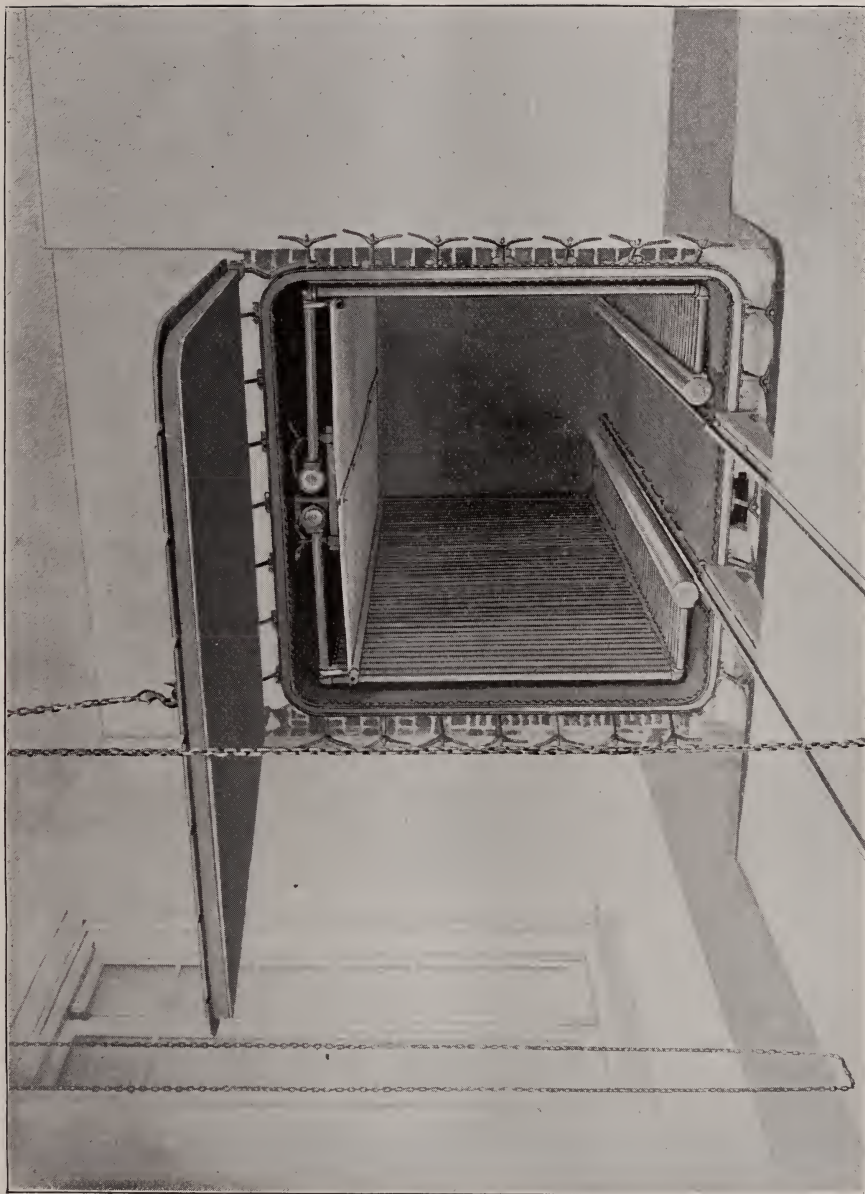
of disinfection in the private home are inadequate for the proper performance of this work.

“The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. There can be no partial disinfection: either its infecting power is destroyed or it is not. In the latter case there is a failure to disinfect.” Now, it is possible to thoroughly disinfect most of the articles used about the sick. The room can be purified, the paper washed with germicide solution and removed, and the soiled materials thoroughly freed from infection, but what becomes of the beds, bedding, carpets, hangings, and articles of clothing which cannot be boiled or submerged in disinfecting solutions? Fumigation is a false reliance, and the attempts at other modes of disinfection prove to be failures on account of the want of proper facilities. Hence, after the best effort has been expended, the hope is indulged that it may prove successful, and the chances of failure are assumed because there is no other alternative. Destruction by fire or other means is a way of solving the difficulty, but citizens will not be willing to submit to this loss of property, and many cannot afford it. It is just here that the municipality should intervene and supply the deficiency, by affording to citizens a safe and efficient means of disinfecting all articles that cannot be satisfactorily treated at home.

It is surprising that an obligation so self-evident, and so imperative for the preservation of the public health, should be so generally ignored in the face of epidemics constantly recurring, for the restriction or suppression of which oftentimes futile attempts are made, for the reason that one of the most essential means of coping with them is neglected.

In strange contrast with this neglect by local boards of health of a most salutary provision is the rigid observance of stringent regulations for disinfection at quarantine stations with the same object in view. Great attention has been bestowed upon the perfection of arrangements for satisfactory disinfection at these stations. Why should not the same facilities be afforded and employed in communities where the requirements are so constant, and the benefits to be derived from them so pronounced?

Various plans have been proposed and adopted for disinfection at public stations, such as by means of fire, chemical fumes, chemical solutions, and dry and moist heat; but the preference



INTERIOR VIEW OF DISINFECTING CHAMBER.

has been given to the last-named method because it is prompt, effective, and best adapted to the kind of articles which call for treatment at such stations.

Steam disinfecting chambers, constructed preferably of steel, in which articles can be disinfected by dry or moist heat at a given temperature, are now deemed indispensable in restricting and preventing the spread of contagious and infectious disorders. Every community should possess one or more of these disinfecting plants, and their use should be offered to the poor gratuitously, and to those able to pay at a nominal rate.

In 1875, the Board of Health of Philadelphia had constructed, for the first time, disinfecting chambers,¹ intended for public use as well as for the use of the Municipal Hospital. The building is constructed of stone, and is one story in height, with a basement. It contains on one floor a bath-room 6 feet by 8 feet, connecting with a dressing-room 8 feet by 10 feet; a fumigating chamber 6 feet by 11 feet, and a hot-air chamber 8 feet by 11 feet. The fumigating chamber is made perfectly tight so as to completely confine the gases generated for the purposes of disinfection.

The hot-air chamber is built of brick, arched at the top. Between the inner and outer walls there is an air-space for economizing heat. The door is of wrought-iron set in a cast-iron frame, so that the chamber is perfectly fire-proof. The furnace is placed in a chamber under the floor, which is laid in tiles of stone supported on an iron frame work. The hot air passes directly through an adjustable grate near the centre of the floor, over which a soapstone screen is placed to protect articles from the direct rays of heat. The smoke-flue passes around the chamber under the floor before entering the chimney. At the top of the chamber there is an opening provided with a valve for the escape of air into the shaft leading to the chimney. Cold air is admitted below into the space around the furnace. Valves control the openings for entrance and exit of air which can be managed without entering the chamber. The thermometer can be examined from the outside through a slit in the wall covered with thick glass.

A temperature of 280° F. can be maintained for any length of time. It, however, has never been deemed necessary to exceed 250° F., as there is danger of damaging the articles when exposed

¹ Constructed according to designs dictated by Dr. Samuel Ashhurst and the writer.

to a higher degree of heat. This apparatus has been in constant use for nearly twenty years, and while it has answered the purpose fairly well, it has not been without its disadvantages. Disinfection by dry heat, in order to be efficient, requires a high temperature, prolonged exposure of the articles, especially if bulky, and, moreover, by its use there is the constant risk of damaging fabrics if the process is not continually and carefully watched.

For these reasons it has been the intention of the board to substitute for this apparatus, when the opportunity offered, a steam disinfecting plant with all the recent improvements. As chairman of the Sanitary Committee, the task fell to the lot of the writer of maturing a plan to meet the present requirements. After an investigation of the best apparatus in use, particularly at the quarantine stations, the new disinfecting plant built for the United States Marine Hospital Service by the Kensington Engine Works, and located at the Delaware Breakwater, seemed to embody the best features of an efficient modern apparatus, and accordingly it was taken as a model. With the assistance of Mr. James A. Palmer, plans and specifications were prepared, in which were embodied modifications and improvements designed to furnish a most complete and satisfactory apparatus. This plant, located at a central point in the city, was finished in the fall of 1893, and cost, with buildings and appurtenances complete, nearly twelve thousand (\$12,000) dollars. It has been in daily use ever since, and has afforded the greatest satisfaction.

There seems to be a disposition on the part of local boards of health to supply themselves with efficient apparatus, and, as already many inquiries have been made concerning this particular plant, it has been deemed wise to encourage and assist this laudable purpose by furnishing a description of the plant and its workings.

The chamber is constructed of steel, is rectangular in form, has a double shell, and is 8 feet 1 inch by 8 feet 4 inches on the inside and 15 feet long, with a space of 2 inches between the shells. The shell is of $\frac{1}{4}$ -inch steel-plate, securely riveted and calked, and thoroughly stayed and braced and made air- and steam-tight under strong pressure. The doors are constructed of double steel-plate, $\frac{3}{8}$ -inch thick, secured with heavy steel clamping-bolts and metal gaskets, which can be adjusted in such a manner as to prevent the escape of steam. These doors are placed upon stout hinges, and open upward by means of chains



DISINFESTING CHAMBER AND CAR.

drawn over pulleys and by counter-weights. Each door weighs nearly one ton. The chamber is thoroughly stayed by stud-bolts, well riveted in place.

Within the rectangular chamber there is constructed a substantially-built steam coil, made of extra heavy, best quality, 1½-inch steam pipe, with fittings and valves about the same, the best of their respective kinds. Connections are made for introducing steam into the coils at four different points, and for discharging the water of condensation at the same number of outlets. The controlling valves are iron-bodied gate-valves of standard make, with the best brass-work and with substantial iron wheel-handles. Thermometers for registering high degrees of heat are provided, and can be conveniently read from the outside.

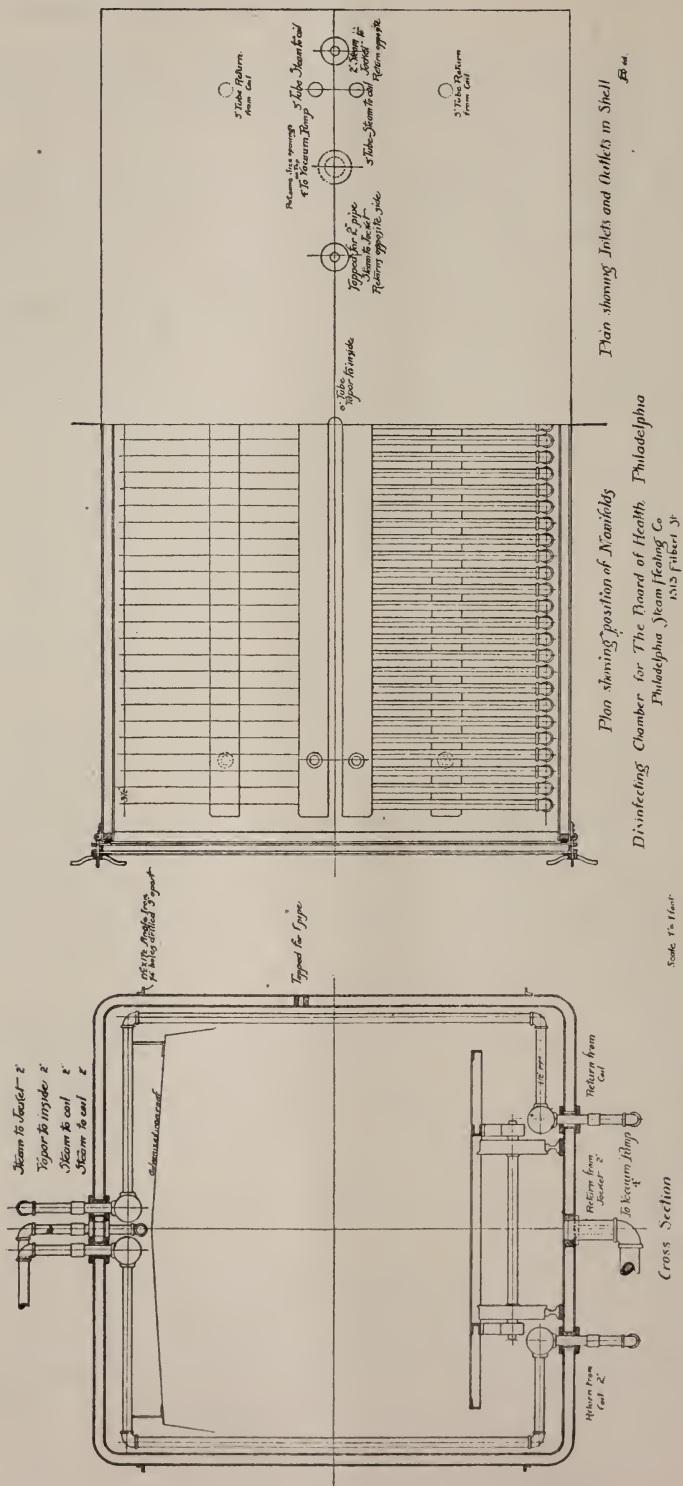
Safety-valves and steam-gauges are attached to the heating surface, together with a pressure-reducing valve for governing the supply of steam to the chamber and coils. All drips about the apparatus are controlled by and connected with a steam-trap. All condensation from the heat-chamber is delivered to a proper receiving tank, and from this returned to the boiler by means of a special duplex pump fitted for handling hot water.

A galvanized-iron hood, strongly made and well stayed, is fastened to the top of the chamber to prevent condensation from falling upon articles while being disinfected. A direct-acting vacuum-pump of heavy capacity, 10 x 13 x 12 inches in size, is used for exhausting the air from the chamber. This pump is connected by a flange-connection with the bottom of the chamber, has all steam, exhaust, and drip-connections controlled by valves of the same kind as those used on the other line from the pumps, and has an outlet above the roof.

The steam space between the shells is 2 inches in width, and has wrought-iron ends between the sheets, neatly planed and grooved, to receive the gasket against which the door forms a joint. This double chamber is made of the best quality steel, substantially stayed, with ¾-inch screwed and riveted stay-bolts, spaced in equal squares of one foot each.

The connections for introducing steam to the chambers and coil are as follows :

Four 2-inch inlets, controlled by gate-valves, which admit steam to the coils at the top of the chamber, and four 2-inch outlets, through which the drip is conducted from the coils at the bottom of the chamber to the trap and tank already described.



Four 2-inch inlets, which admit steam to the jacket or space between the shells at the top, and the same number of 2-inch outlets at the bottom for draining the water of condensation.

One 2-inch inlet, which admits steam to a perforated pipe running the entire length of the main chamber above the canopy used to protect the articles being disinfected.

Two 4-inch openings in the bottom of the main chamber, one at each end, which connect with the vacuum-pump. Through these openings steam may also be injected by the use of a series of valves, reversing the current of steam.

There is a pressure-regulator for indicating and governing the supply of steam. A combined vacuum- and pressure-gauge is attached to one of the doors.

Heat is provided by a vertical flange steel tubular boiler, 54 inches in diameter and 11 feet high, made of the best steel of Lukens Bros. make. The fire-box of the boiler is $\frac{3}{8}$ -inch steel, and the fire-box hood $\frac{1}{2}$ -inch. The boiler is guaranteed to withstand a working pressure of 100 pounds. It is set upon a strong brick foundation, and supplied with a full and complete set of valves, thermometers, fittings, one universal injector, and an asbestos-packed blow-off. It is jacketed with No. 12 best black iron, and covered over at the top so as to return the flame down from the outside shell to the boiler below, where there is a connection with the flue. The boiler is supplied with a well-constructed, wrought-iron smoke-stack of No. 12 iron, with a collar where it passes through the roof, and is substantially stayed to the building.

The boiler is guaranteed of sufficient capacity to generate in the chamber, within ten minutes, a pressure of ten pounds to the square inch, and maintain it continuously for one hour. It is guaranteed to be not less than 50-horse-power, each horse-power to represent 12 square feet of surface. The disinfecting chamber, the boiler, and all steam-pipes are covered with the best sectional magnesia non-conducting material, to prevent undue radiation and loss of heat.

Two cars are used for holding articles to be disinfected. They are each 13 feet long and 6 feet 6 inches high, and about the same width, and each one has four 16-inch wheels, with rolled iron axles, which move upon a track of 3-feet gauge. The cars are made entirely of iron, and have slatted floors of 1-inch by $\frac{1}{4}$ -inch iron, riveted to the frame of the car. They are coated with two coats of black Japan.



DISINFECTING BUILDING.

The track equipment consists of iron trusses or supports for the track of steel rails, wrought-iron tie-bars, and pipe ferrules for staying it in place. The rail in the interior of the chamber is T-rail its full length.

The arrangement of the tracks is such that the cars, after having passed from the disinfecting chamber into the delivery-room, can be returned on the outside of the building to the receiving-room. The object is to have no connection whatever between the two rooms, except through the disinfecting chamber and on the outside of the building, in returning cars after disinfection.

The building enclosing this apparatus is 84 feet 2 inches long and 26 feet 8 inches wide, divided into three compartments. The middle compartment contains the boiler on one side and the steel disinfecting chamber on the other side. The receiving-room for infected articles at one end of the building is 33 feet 4 inches long and 26 feet 8 inches wide, and the delivery-room at the other end is of the same dimensions, and is completely separated from the other parts of the building. The floors and washboard are constructed of Neufchâtel asphalt, and the walls and ceilings coated with the best King's cement plaster, finished smooth, without angles or cracks in any part of the work.

The space outside of the building is paved with first-class Neufchâtel asphalt, bordered with 4-inch granite curbs buried in the ground 2 feet.

It is not necessary to have a temperature of over 230° F., with a pressure of about 20 pounds, if maintained for at least 20 minutes, for it has been demonstrated that this is sufficient to destroy all known disease-germs, and even the most resisting spores. Exposure to such temperature and pressure is, however, continued for a much longer time. With the combination of moist and dry heat there is no difficulty in obtaining a high temperature. Not only are instruments for denoting the pressure and the temperature within the chamber used, but carefully-made, self registering thermometers are also employed for placing in the interior of bulky articles, such as mattresses, beds, etc., so as to have the assurance that all parts of the articles have been exposed to the proper temperature. By the proper adjustment of moist and dry heat, and the use of the air-pump, articles can be removed from the chamber in a thoroughly dry state, and if care be taken not to have too high a degree of heat, the articles need not be injured in the slightest.

When only live steam is used, the amount of pressure corresponding to a given temperature, or the temperature corresponding to a given pressure, can be found conveniently by the use of Rankine's table.

EXTRACT FROM RANKINE'S TABLE. SATURATED STEAM.

| Temperature. Degrees Fahrenheit. | Pressure. Pounds per square inch. |
|-------------------------------------|--------------------------------------|
| 158 | 4.51 |
| 167 | 5.58 |
| 176 | 6.87 |
| 185 | 8.38 |
| 194 | 10.16 |
| 203 | 12.26 |
| 212 | 14.70 |
| 221 | 17.53 |
| 230 | 20.80 |
| 239 | 24.54 |
| 248 | 28.83 |
| 257 | 33.71 |
| 266 | 39.25 |
| 275 | 45.49 |

Separate wagons are used for collecting infected articles and for returning them after disinfection. The collecting wagon is made as tight as possible and is lined throughout with wood, finished smooth and free from cracks, so as to admit of being easily washed with disinfecting solution. All articles received are immediately tagged and registered and at once spread out upon racks of ash wood, which stand upon the iron car, the surface of which is covered with canvas to prevent contact with the iron. The car is then promptly rolled into the chamber, the door closed and clamped, and steam admitted to the shell and coils. After the chamber has become thoroughly heated, the air is exhausted as nearly as possible by means of the steam vacuum-pump, at the termination of which process the thermometer registers about 212° F. Live steam is then turned into the chamber, which, without difficulty, maintains a temperature between 230° F. and 250° F. for a period never less than twenty minutes, generally for a much longer time. The live steam is then shut off and the pump started again, its effect being indicated by the vacuum gauge. In the mean time dry heat from the shell and coils tends to prevent precipitation of moisture when the doors are opened.

When the process is completed, air is gradually admitted by slightly opening the door so as to prevent rapid condensation.¹ By a little experience articles can be removed from the chamber in a thoroughly dry state.

The articles are removed by the door at the opposite side of the chamber, which opens into a room entirely disconnected from any other part of the building, and in this room the articles are arranged for delivery, which must be prompt.

The car which contained the disinfected articles is run out of the building and around it upon a railway constructed upon an asphalt pavement and then into the receiving-room. Two cars are in use. While one is in the disinfecting chamber the other is being loaded to await its turn.

A superintendent, one assistant, and an engineer are employed exclusively to conduct this work.

Not only has the disinfecting plant been of great service at the hospital, but it has been brought into daily use in disinfecting clothing, bedding, carpets, curtains, and various articles that have been exposed to infection in private homes. The disinfecting for citizens who have not the appliances or means of purifying infected articles in their own homes is of the greatest importance, and, therefore, strenuous efforts have been made to induce them to freely make use of this apparatus for the purposes aforesaid; and, in order to popularize this work, it is done gratuitously for the poor, and at a nominal price for those able to pay.

His First Patient.

Howard's father is a physician, and one day, when the doctor was out, Howard and a little playmate were "playing doctor" in the real doctor's office. Presently, Howard threw open a closet-door and revealed an articulated skeleton to the terrified gaze of his playmate, but Howard himself was perfectly calm. "Pooh, Walter!" he said to his playmate, "what are you afraid of? It's nothing but an old skellington!" "Wh-wh-where did it come from?" asked Walter, with chattering teeth. "Oh, I don't know. Papa has had it a long time. I guess likely it was his first patient."

¹ This apparatus was constructed for the Board of Health by the Philadelphia Steam Heating Company.

A Consideration of the Use and Abuse of Athletics.

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HERE is no question before the American public at the present time which is of more vital importance than the present craze for athletics of all kinds. While I am a partisan for athletics, I am nevertheless of the opinion that it is high time that physicians took a more practical interest in the subject, recognizing and teaching the limitations of athletics from the stand-point of physical safety. Athletics are potent for good, but equally potent for evil. This must be thoroughly understood before the subject can be discussed upon broad grounds.

For the sake of clearness, I will divide athletics into several heads:

- (1) Athletics for health and development.
- (2) Athletics for glory.
- (3) Athletics for revenue only,—the prostitution of athletics.

The physician's interest is quite naturally most often directly to athletics for health and development; hence a few general remarks may not be out of place. Athletics for health and development constitute a department which is most generally useful to the human race, being adapted to the physical needs of the average man. From a health stand-point a certain degree of athletic training should be considered essential to the welfare of every individual. A large proportion of mankind are engaged in occupations which amply fulfil the demand for suitable muscular exercise. Athletics for health do not, as a rule, enter into consideration in the life of a man who is swinging an axe all day long, or who is engaged in farm labor. Unfortunately, however, many individuals are engaged in occupations which entail so little necessity for physical exertion that they cannot on the average maintain a healthy physical standard without voluntary indulgence in some form of athletic training or sport. Even the farm

laborer may be of a naturally feeble physique, as a consequence of which he may be poorly developed in some particular direction. The farm hand with a contracted chest and poorly-developed lung and a bad heredity may succumb to the germs of tuberculosis when proper training in the matter of breathing and chest-development might save him. It is in the direction of proper athletic training and development that we must look for measures of correction of the physical viciousness—and, I was about to say, much of the moral viciousness—of modern civilization. It might be well to raise the question whether civilized man has so great an advantage of the savage as might at first be supposed. The superior intellect, ingenuity, and refinement of civilized man have not been gained without physical cost. Man is at best but an animal in structure and function, and the neglect of civilized man to preserve in himself the physical attributes of a superior animal, while cultivating to the utmost his intellectual faculties, has been very expensive. Some of our ancestors had very little knowledge of the arts and sciences, but they had what served them in much better stead,—big lungs, strong hearts, ponderous muscles, and the endurance at which we moderns are inclined to marvel. If we could taunt the shades of our savage ancestors with their ignorance, they could twit us about our aches and pains and physical degeneracy in such a manner that honors would be decidedly easy. We are very proud—and justly so—of our great artists, our mighty men of science, wizards of invention, and human lexicons, but when we take into account the weak, delicate, deformed, and vicious flotsam and jetsam of civilization, we have little cause for boasting. When I speak in this somewhat forcible manner of the physical deficiencies of modern civilization, it will be distinctly understood that I am taking the population of our large cities as a type. I may say in this connection that the tendency to intellectual development at the expense of physical degeneracy is so marked in the more populous centres of civilization that the race would soon run out for want of bone, sinew, muscle, and rich blood were it not for the ceaseless infusion of new blood derived from the country. It is hardly necessary to expatiate at great length upon the advantages of physical exercise in the maintenance of health. There is probably no intelligent person, however great his physical indisposition to exertion may be, who does not accept the truth of the ancient adage, "*Mens sana in corpore sano.*" Few men, indeed, may become renowned athletes and scholars at the same

time, but be it understood that the intellectual attributes of the men of genius and talent are increased by the possession of good rich blood and the development of muscles over which they have perfect control. Many men of a high degree of intellectual culture are very delicate, and physiologically more or less degenerate, but they would be none the less capable of powerful intellectual efforts, and their work would be continued for greater length of time if they were possessed of sound, well-developed, and healthy bodies.

Athletics for health may be abused. It is my experience that physicians, as a rule, know very little of the principles of physical training. Where they have confidence in the results of physical training and prescribe it, they usually do so in a routine and indiscriminate fashion, with no instruction as to the kind and quantity of exercise. The result is not only not beneficial, but often actually detrimental. Fortunately some of the subjects for whom physical training is injudiciously prescribed get lame and discouraged very soon after trying the experiment. Others, however, keep on in a pernicious manner developing some sets of muscles at the expense of others, and perhaps bringing about in the end absolute degeneracy of groups of muscles which most require development. The man with big lungs and weak limbs is permitted to work away at chest-development with a spider-like result that is often ludicrous, to say the least. Broadly speaking, we may divide the individuals who present themselves to the physician for advice regarding physical training into two classes: (1) The stooping, hollow-chested, spindle-legged chap who stoops over the desk all day and gets no exercise save that incidental to climbing on and off the street-car. (2) The fat and gouty fellow, of middle age or past it, who has never taken any exercise save that involved in the manipulation of a knife and fork or a schooner of beer. When physical exercise is prescribed for these two individuals in an indiscriminate manner, they are very close to the danger line. When such unfortunate persons do succeed in keeping up athletics for some time, they are likely to be led by misguided enthusiasm into competitive feats of athletics with a result which brings discredit upon athletic contests of all kinds. To sum up: athletics for health should be prescribed with as much circumspection as any other remedy, with a careful study of the individual, his physical capacity, and physiological needs. During the course of his training he should be carefully super-

vised. He should never attempt competitive feats without the most careful investigation as to his intrinsic capacity for the particular form of athletics in which he desires to excel, and a careful estimate of his organic capacity of resistance to the involved physical strain, which leads us directly to the proposition that it is the exceptional man who should indulge in athletics for glory.

The discredit which has been brought upon competitive athletic feats has been due not so much to their intrinsic dangers as to the injudicious selection of individuals by trainers and the injudicious selections of special forms of athletics by the would-be athletes themselves. A spirit of emulation is very likely to arise, even in men who are primarily very indifferent, by virtue of the enthusiasm which an improvement in health and strength brings about. The athlete should understand that while it is his full duty to get the most out of himself that is practicable, from a physical stand-point, within the limits of safety, he must not forget the personal equation in his desire to emulate those whom nature has more richly endowed with bond, sinew, and innate muscular power than himself. Muscular training should aim at the development of the fullest capacity of each particular individual. One might not gather figs of thistles in athletics any more than elsewhere. There is as wide a variation in muscular as in brain capacity. One should aim to perfect himself within the measure of his own capacity. I hold the opinion that the example of such men as Sandow is pernicious, as impelling our young men to attempt the cultivation of enormous muscles and feats of strength for which nature never endowed them, and for which they never could become capable with any amount of physical training. Mr. Sandow comes before an audience and very glibly recites his little story of his method of muscular training which makes a Samson out of a dude in the space of three months. In proof of the efficacy of his system, he exhibits not a transformed dude, but Sandow, which is quite a different matter. I will say here that the man who practises athletics for the purpose of acquiring muscles of tremendous bulk makes a fatal mistake. It is not the bulk of a muscle that counts, it is the amount of control which the individual has over the muscle, and in a general way over groups of muscles. A large, bulky muscle is, other things being equal, a very sluggish muscle. A much smaller muscle of fine fibre and of rich nervous endowment, which is completely under the control of its possessor, may not only be put in action more quickly,

but on the average may present much more strength and endurance than a muscle of bulkier mould. A high degree of volitional control over the various groups of muscles of the body, incidental to a fine nervous organization, sometimes accounts for surprising strength. It is a noteworthy fact that women are proportionately much stronger than men, when height, weight, and bulk of muscle are taken into consideration. There is not a man in this room who has not observed, perhaps frequently, in tussles that some weak-looking individuals are decidedly hard to handle. I repeat that it is not the bulk of muscle that counts, but it is the ability to put various groups of muscles into action in what may be termed a concentrated manner, and the ability to sustain the action of these muscles for a prolonged period. Again, surprising bulk of muscle may be acquired in some instances by systematic heavy exertion, but just as sure as fate the development of such muscles will cease sooner or later and degeneracy of muscular fibre with wasting will supervene.

Incidentally, before discussing the subject of competitive feats in a general way, I will state that such competitive feats as are involved in exhibitions of strength in lifting and pulling against dead weight are absurd in theory and most pernicious in practice. Man was not designed to do the work of a horse. He cannot do the work of one and live. I shall shortly express myself as in hearty sympathy with competitive athletics with certain modifications which, as a physician, I must necessarily insist upon. I will take this opportunity, however, of condemning such so-called athletic feats as the tug-of-war and similar exhibitions. It would, in my opinion, be as rational and a great deal safer to do the tug-of-war by proxy by hitching a couple of mules onto the respective ends of the rope.

I have, I believe, outlined an argument in favor of the view that it is the exceptional man, and not the average one, who is so endowed by nature that he is capable of practising athletics for glory,—that is, of indulging in competitive athletics. I have already stated my opinion of competitive feats which depend upon strength alone. Ideal competitive athletics should involve the necessity for strength, skill, endurance, and intellectual capacity in combination. I believe that most of the higher grades of athletics involve all of these elements. There are those who believe that competitive feats of athletics should not be tolerated. I beg to dissent. They should not only be tolerated, but should be

encouraged within reasonable bounds, and due consideration to the selection of individuals and the form of athletics. Some men may make very creditable oarsmen, who never could excel in boxing. Others again may make excellent boxers, and yet handle a fencing foil about as gracefully as the average old woman does a broom-stick. Nowhere is carefully-selected specialism more necessary than in competitive athletics. Nowhere should greater caution be exhibited regarding the physical condition of the individual, its flaws and imperfections, and a careful supervision of the method of training so necessary as in competitive athletics. Athletics, without competition, is, as Madame de Staël said of a kiss without a mustache, "like soup without salt." Hamlet with Hamlet left out is nothing by comparison. The difference between sawing a cord of wood and rowing a boat-race is decidedly in favor of the wood-sawyer as regards the amount of physical exertion, yet the average athlete would be likely to eschew the wood-sawing as a form of athletics. To carry the wood-sawing argument a little farther, we can imagine that a friendly competition between two of a craft would result in much greater destruction to the wood-pile. Man is naturally a competitive animal; there is in him a spirit of emulation which has ever made him progressive. This has been the mainspring of civilization. Man has always worked best when he had something to work for. This is as true of athletics as elsewhere; that the spirit of physical aggressiveness has done much for mankind history amply shows. Great Britain, for example, has owed much of her supremacy on land and sea to the predilection of her sons for rough and hardy sports. He who has never trained or entered competitive athletic contests does not know what it is to live. Brainwork and brain development may be in a measure satisfactory, but the man who has never experienced a thrill of exultation and bubbling over of animal spirits—that consciousness of well-being incidental to thorough development and control of the muscular system—has never tasted the joys of animal existence. He who has never possessed the ambition to excel in athletic sports, his life is a sort of human vegetable. He has enjoyed life after a fashion, perhaps, but very much as does a tame goose as compared with the old honker flying with the wind or a little ahead of it. A well-developed and healthy cow may chew the cud of contentment, but it is the wild deer that quaffs the champagne of existence. This may be construed as another

argument in favor of reversion to the savage type, but there is much to be said in its favor. As already remarked, civilization may have refined us, but the refining process has been physically expensive; man, the animal, being on the average a less creditable specimen than he was in his primitive state.

I do not know what the opponents of competitive athletics would advance as a substitute to keep up the interest of those individuals who are not practising physical training solely for the pursuit of health under the advice of a physician. Some sort of a hybrid Delsartism might possibly suffice for these critics, although I confess my inability to suggest any form of emasculated athletics which might prove perfectly satisfactory to them. I am afraid it would be difficult to emasculate athletics, anyway. The practice of athletics conduces to manliness. A bandy-legged dude creeps languidly into the gymnasium, dons a pair of sky-blue trunks and a pretty shirt with pink stripes; dawdles around watching the husky fellows work, taking care not to jostle his eye-glasses or get into a vulgar sweat; he plays ever so gently with the punching-bag, and goes away with his chin a trifle higher and a stronger pull on his cigarette. He has not accomplished much in the way of muscular training, but his enthusiasm is aroused, and for the time-being he is athletic. At such times he is positively dangerous. He is athletic by proxy. This is athletics reduced to philosophical principles. Perhaps some of my readers remember the chunk of wisdom perpetrated by Epictetus. Somebody said to him, "I am wise, for I have for many years associated with men of wisdom." Whereupon the wise philosopher retorted, "I am rich, for I am made merry with millionaires," or words to that effect.

It is true that there is danger in some forms of competitive athletics. But it is a question whether this does not add to their attractiveness. I will acknowledge that the danger element is oftentimes too pronounced, but this comes under the head of abuse in the use of athletics. It is not the fault of athletics *per se* that the modern foot-ball match has degenerated into a rowdy, rough-and-tumble fight. Because some rowdy, who happens to be temporarily in the command of athletes, takes the opportunity to put his heel in the face and head in stomach of some unsuspecting fellow in the opposite eleven, is no reason why foot-ball should be entirely condemned. I will remark in passing, however, that it is high time a note of warning was sounded. The

list of fatal and crippling accidents incidental to foot-ball during the past year has been about equal to that of the average battle-field. It has exceeded by far all of the fatalities incidental to pugilism than has ever occurred in the history of this country. In reading some of the accounts of foot-ball matches, I have been forcibly reminded of the lurid reports from the battle of "Wounded Knee." In a general way, it may be remarked that these forms of athletics which most require the training of the eye, brain, and muscles are fencing, boxing, and wrestling. Nothing could be more beneficial than the science and art of fencing. We will reduce the practice of fencing to the ideal demanded by our non-competitive friends and imagine the swordsmen flocking like Dundreary's bird all by himself, and working himself into a state of hilarious enthusiasm by punching holes in the circumambient air. We will leave our non-competitive swordsman still punching the air and briefly allude to boxing and wrestling. These forms of athletics are, of all others, best calculated to bring man to a state of physical perfection. When properly practised, they favor the natural play of the muscles, conduce to a development which is perfectly physiological, increase endurance and agility, quicken the eye, and incidentally improve the perceptive faculties. They are, of all forms of athletics, the most natural. He who indulges in them must necessarily for the nonce attend strictly to the business in hand. A man may play with dumb-bells or Indian clubs, or work the pulley-weights, and imagine that he is practising athletics, although he is nevertheless occupying his mind at the same time with the price of wheat or real estate, or, if he be a professional man, may be worrying about the outcome of some important case. Let him box or wrestle, and he is very likely to have something else to think about for the time-being. These forms of athletics certainly educate not only the muscular but the intellectual intuition. Are these forms of athletics open to criticism, either from the stand-point of danger or respectability? I think not. It will be understood that I am now speaking about true athletics, as practised by amateurs, and not of "athletics for revenue only." No form of athletics has been so abused and, indeed, prostituted as boxing. It is held in certain quarters that a knowledge of boxing is rather detrimental to the social status of the individual. There are others who believe—and I think quite logically—that a man may have a knowledge of boxing and still remain not only a gentleman, but possi-

bly a pretty good Christian. Of course, the Christianity of such a man would not appeal very strongly to those who believe, as Tom Paine so aptly put it in that spaniel-like idea of manliness, which implies that when one is assaulted, the proper thing to do is to turn the other ear around and get that pounded. But, fortunately not all the world believes that that sort of principle constitutes manliness. Boxing contests are not necessarily degrading, nor productive of rowdyism. The conduct of the pugilistic loafer and blackguard is not to be taken in evidence excepting in so far as it proves that he is just as much or more of a blackguard than he was when he began to practise boxing. It may sound rather peculiar, but I firmly believe that a knowledge of this form of athletics is rather conducive to peaceful than to warlike habits. In an observation of gymnasium work of some twenty years, I have yet to see the first quarrel which was precipitated by a boxing contest. It has been my experience, moreover, that the gentleman who understands the art of self-defence is rather more likely to avoid a quarrel than to enter one. The athlete who has the self-consciousness of being amply able to protect himself is very likely to regard the rowdy with the same contempt that a St. Bernard does a yellow cur which yelps at his heels. I am not certain but what athletics, if practised in the right spirit, would be beneficial to the characters of some men who by natural instinct are loafers. The experience of the Elmira Reformatory has shown that proper physical training has had a marked effect not only upon the physique, but upon the moral qualities of young offenders confined in that institution. There is no denying the fact that boxing has been brought into discredit by the prostitution of the art by professionals. Personally, I do not believe that any argument based upon the evils of professional athletics is at all pertinent as applied to true athletics, which means simply amateur athletics or, as I have already expressed it, athletics for glory. It is not necessary that men should be brutes in order to enter a competitive trial of skill in boxing or wrestling. Hard blows may be given and taken without any serious resulting damage. That the danger is not great is shown by the rarity of fatalities and serious accidents even among professional pugilists. I will take this opportunity of stating that I do not think that knock-out contests are necessary to amateur boxing competitions. It was an unfortunate thing, in my estimation, for amateur athletics when the knock-out principle was introduced and an attempt

made to pattern to a certain extent after professional pugilists. The so-called knock-out is not a criterion of the relative skill, strength, and endurance, as exhibited in boxing competitions. If amateurs keep up this practice, it will not be long before they will adopt all the other disagreeable features of professional pugilism. As for professional pugilism, the sooner it is sat down upon, good and hard, the better it will be for the reputation of athletics; I am speaking from an athletic and not from a sociological or moral stand-point. The cant and hypocrisy of some people in regard to pugilism is positively sickening. Some of our prominent citizens, for example, scramble over each other in frantic endeavor to obtain admission to an execution. I presume that they attend such disgusting exhibitions of man's inhumanity to man for the enjoyment it affords them. These same individuals set up a great howl every time an exhibition of pugilism is permitted. Amateur boxing and wrestling contests under the restrictions which have already been laid down as regards careful study of the qualifications and powers of endurance of the individuals, and with due attention to proper methods of training, should, in my opinion, be encouraged as tending to foster a praiseworthy spirit of emulation and the cultivation of the attributes of true manliness in our young men. These forms of competitive athletics should not be discouraged because they are abused by some individuals who practised them either as a means of livelihood or in a quasi-amateur way. Every effort should be made to make these forms of athletics more popular, and thus to elevate their tone. Above all, the advocates of athletic sports should do everything in their power to correct the popular fallacy that these sports convert gentlemen into bullies. It depends entirely on the quality of the material that is being worked upon.

Diphtheria from a Book.

BY J. N. HURTY,
City Chemist of Indianapolis.



URING the last week of March, 1894, my son, 15 years old, was stricken with diphtheria. Cultures were immediately made from the throat patches, and the Klebs-Loeffler bacillus was certainly obtained. This, together with the careful examination and diagnosis of the

physician, established the existence of diphtheria without a doubt. Close inquiry and questioning of the boy failed to discover any exposure to the contagion. The youth attends the City High School in the forenoon. In the afternoon his study hour is continued until four o'clock, then on his bicycle a ride of a few miles is taken, and other out-door exercise enjoyed. He had no recollection of visiting any unusual places, had not been to any public entertainment for more than two weeks prior to the attack, and as the High School had known nothing of diphtheria for two years, we were greatly puzzled concerning the origin of the disease. It was remembered, however, after some days, that he had had a public library book, which was much soiled. This book I quickly secured again. It was much worn and very dirty, and on one of the corners the marks of teeth were plainly visible.

Being constantly employed in chemical and bacteriological work, I was able without delay or uncertainty to make cultures from many parts of the book. The corner having the teeth-marks was the only spot which furnished the Klebs-Loeffler diphtheria bacillus. One of the tubes developed staphylococcus pyogenes aureus, and all, of course, furnished growths.

The book was subjected to dry-heat sterilization and returned to the public library, and the authorities informed of my work. The history of the volume was carefully traced through the library and city health board records, but it was not discovered that it had been in the hands of any one having diphtheria. The cultures, however, being unmistakable, I feel positive that my son must have taken the disease from the book in question.

The library management was inclined to oppose my work and conclusions, and advanced the information that, "the transmission of disease by books had been a matter of close study by the National Library Association, and not one case had been discovered before." It seems plausible to suppose that the physician and bacteriologist would be most competent to investigate this matter, but it is also true that statistics and observations made by other professions might be of value.

The Symptoms of a "Cold" Accurately Stated.

A four-year-old caught a severe cold while his mother was out of the city, and on her return rushed up to her, and throwing his arms around her, cried, "Oh, mamma, both of my eyes is rainin', and one of my noses won't go."

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EDITORIAL

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

Boroughs without Health Boards are Public Nuisances.

THE attention of the authorities of every borough in Pennsylvania is hereby called to the following preambles and resolution adopted by the State Board of Health of Pennsylvania, February 24, 1894 :

WHEREAS, The Legislature of this State did, in its wisdom, by Act of Assembly of May 11, 1893, require all borough councils to appoint boards of health, in and for their several boroughs, within six months of the passage of said Act ; and,

WHEREAS, In the experience of this board, permanent aggregations of population sufficiently large to form boroughs, when not provided with legally-organized boards of health, constitute a standing menace to the health of the people of the entire State ; therefore,

Resolved, That the State Board of Health of Pennsylvania hereby declares the condition of any and every borough in this Commonwealth existing in contempt of the Legislature and of the law, without a board of health, duly established in conformity with the provisions of the said Act of May 11, 1893, and without "necessary rules and regulations" made by the board, and "approved by the borough council and chief burgess," as ordered by said Act, to constitute a nuisance prejudicial to the public health.

Cleaning Wells.

WE have received a communication from a reader of this Journal, whose summer home is at Colonial Beach, on the Lower Potomac, asking us on behalf of himself and his fellow-residents for some information in reference to the cleansing of wells. He tells us that the cottages at Colonial Beach are occupied only during two months of the year, and that during the other ten months the wells are not used. We are also informed that as a rule tarred boxes are used in the closets, so that there is little reason to fear the percolation of sewage from the privy into the water-well. Upon moving down to the beach at the beginning of summer, each family has the well pumped dry, and occasionally a few pieces of lime are thrown into the well. The subsoil is clay, six or more feet thick, resting on shale and gravel. With these statements, our opinion is asked as to whether the water derived from these wells, which is clear and pleasant to the taste, is likely to be wholesome or contaminated.

Of all questions in science, there is probably no one so indefinite, about which it is so difficult to make dogmatic assertions, as this question of the purity or impurity of well-water. Generally speaking, our opinion would be that water derived from wells such as those described at Colonial Beach would be most likely to be pure and free from contamination. Whether this be so or not, we can answer our inquirer that we know of no further precaution that can be taken to insure the purity of the water beyond that which he described as being the custom. We must ever remember that the workings of nature underneath the ground, being invisible, cannot be fathomed in their entirety by the mind of man. We have abundant evidence, however, to prove that there are underground water-currents flowing in diverse and oft-times in the most unexpected directions, and we have every reason to believe that water-wells are frequently contaminated by sewage carried in these underground water-courses from amazingly great distances. It is not necessary to cite instances—though very many could be related—to prove the statement just made, because it is a fact universally recognized and admitted. Such being the case, the invisibility of nature's workings underneath the ground, and the possibility of contamination from points very remote being borne in mind, it will seem but logical for us to make the assertion that well-water can never be said to

be beyond the possibility of contamination, no matter what may be the local conditions or the precautions observed. Not being morbidly sensitive, and not believing that it is well for any one to be so, we would say for ourselves that we would be perfectly satisfied to drink water from wells such as these described; but at the same time we feel warranted in asserting as a dogmatic principle of hygiene that wells are not the best places from which to derive water for drinking purposes. It is a somewhat significant fact that the death-rate from typhoid fever in New Orleans is remarkably low, while the general sanitary condition of the city is not extraordinarily fine; but the majority of the citizens of New Orleans drink rain-water collected in cisterns; and when we bear in mind the relation of foul water and typhoid fever, and when we see a city remarkably free from typhoid fever, wherein rain-water, which is distilled water, is the only form in which water is used, it suggests itself to us whether, after all, the only absolutely pure water is not that which is collected directly from the clouds in the shape of rain.

These last few remarks have been suggested to us merely for the purpose of enunciating a principle. Practically speaking, many persons are compelled to take their water from wells, and if the precautions such as are in practice at Colonial Beach would be everywhere resorted to, the danger from well-water would be at last reduced to a minimum.

A Model Health Resort.

A LITTLE over a year ago we attended a meeting of the New Jersey State Sanitary Association at Lakewood, and were particularly interested by and instructed with a paper upon "Health Resorts," read by Dr. Mitchell, of Asbury Park. It is a fact beyond the province of dispute that health resorts are made and maintained by physicians. The best health resort in the world is the open country, where one is continually breathing into his lungs and is surrounded by the purest of atmosphere. Some localities do possess some natural advantages over others, but these advantages are not so marked as to entitle these localities to such wide-spread reputations as many of them enjoy. It is therefore, as we have said in the beginning, the dictum of the physician that makes or breaks a health resort. The greatest of

all health resorts of this country to-day, Atlantic City, has been made the huge sanitarium that it is by the physicians of the United States. Atlantic City undoubtedly possesses some peculiar restorative properties. The atmosphere of the place acts with marvellous tonic properties. Yet we have no question but that there are many spots along the Atlantic coast that possess quite as valuable properties, yet are unknown to the public at large.

Now in this address of Dr. Mitchell, already referred to, the ground was taken that in view of the marvellous progress that has been made in hygiene within the last few years, the time was rapidly approaching when the physicians of the land would ask of the health resorts that they are making and supporting to show their hands from a hygienic point of view; that the time was rapidly approaching when the physician would not be satisfied with circulars setting forth in a mysterious, indefinite, and illy-defined manner the peculiar properties and claims of any particular resort; but that the physician would say, "What is the sanitary condition of your resort? What sort of a board of health have you? What are your hygienic rules and regulations? What of your water-supply? Is your sewerage good? Are your streets well paved?" and so on; and that it would be the resort that could answer these questions satisfactorily that would receive the favor of the physicians. Dr. Mitchell was not utopian enough to expect such a condition of affairs to come about to-day, to-morrow, or next week. In fact, he said to us personally that he thought he was about ten years ahead of the times.

We were very much impressed by the reading of this paper, and have reflected much upon it since that time, and we have come to believe that Dr. Mitchell is about right. The people themselves are becoming so well educated in hygiene that it will not be long before they, even, will inquire into the sanitary condition of a health resort before deciding which one to visit. Now at Lakewood we have never been able to discover any remarkably peculiar natural attributes. It is true, this resort is located somewhat in the pines of New Jersey. But it is rather on the northern edge of these pines; the midst of the pine belt being considerably south of Lakewood. Yet, at the same time, Lakewood is one of the most popular of the health resorts of this country to-day, and we believe that the secret of this popularity is to be found in the fact that the town being under the control of wealthy men, who,

while not averse to making money, yet have this as a secondary consideration in their administration of the affairs of the locality, the hygienic regulations of the place are most admirable. The question of water-supply and sewage disposal we will dismiss with the simple remark that it is all that could be desired, because there is one special feature to call attention to which this editorial has been written. To our way of thinking, a very great and real danger to health is to be found in the occupancy of rooms in a hotel but recently vacated by some one who has had a contagious disease, and we have always felt that it would be the part of wisdom for hotel proprietors to endeavor in some way to regulate this matter. Lakewood has taken the initiative, and we are glad to be able to report that the following circular is handed to every person seeking admission at one of the principal hotels, and is required to be filled in in writing, and signed before their application for rooms is considered; should they make a false answer, and this duplicity be subsequently discovered, they are forever barred from gaining entrance to this particular hotel.

The circular reads as follows :

With a desire to extend equal protection to all, we ask your attention to the following circular, to which an answer is required :

First.—Have any of your party been ill with, or exposed to, any contagious disease within the last three months, such as scarlet fever, diphtheria, measles, whooping-cough, chicken-pox, or mumps?

Second.—If so, which disease, and when were they exposed or sick?

To our mind, this is an extraordinary step for these gentlemen to have taken, and it must have required extreme courage to venture upon it; but we are reliably informed that even from a business point of view the result has been all that one could desire, for it gives a feeling of security to those looking for a health resort wherein the danger of losing their health will be reduced to a minimum.

The Origin of Cities.

SOME fourteen years ago the editor of this Journal had in course of preparation a book on healthy living, and in order to make it very practical, his first step consisted in sending a circular letter to the mayor or burgess or chief authority of every city or town in the United States with a population of

2000 or more persons, asking for the names and addresses of all intelligent citizens in the locality over 80 years of age. The names of thousands of octogenarians were thus secured. To each of these in turn a circular letter was addressed stating the object in view, and asking answers to sixteen set questions bearing upon the attainment of longevity, and also for any general information that might help him in the preparation of this book. Among these questions, of course, the trite ones in reference to the use of alcohol and tobacco were included. To this circular letter thousands of replies were received, constituting a most extremely valuable and interesting mass of literature. The answers to most of the questions varied very greatly. While, of course, the majority of these old gentlemen had either been total abstainers or but moderate users of alcohol and tobacco, yet the very oldest of the lot, a man 106 years of age, writing from Richmond, Ind., stated that he had used whiskey all his life and was still using it. But there was one question, the replies to which were so significant that they have left upon our mind a lifelong impression, and have shaped and modified to a great extent the course of our life since that time. This pregnant question was, "*Were you born and brought up in the city or the country?*" And of all these thousands of octogenarians, only one single, solitary individual had been born and brought up in the city. They had all been born and passed their early years in the open country, the majority of them engaged in hard work upon the farm. Many of them, it is true, having reached the age of 14 or 15, would move into the city and engage in some business pursuit, but the foundation of their after physical life had been laid in the country. Stop a moment and think over the great men of this country,—the great doctors, the great lawyers, the great generals, the great statesmen, the presidents, the great clergymen, the men who have risen to eminence in every walk of life, and in almost every instance we will find that they have been country-born and country-bred boys.

Let us not forget the old saying that God made the country and man made the city, and since everything made by man is of necessity artificial, so also must we regard the city as an artificial aggregation of humanity that is not conducive to the best hygienic conditions.

Having this train of thought in our mind recently, and picking up the Bible and reading the book of Genesis, we were

struck forcibly when we read that the first city was formed by Cain. When we come to discuss the relative merits of city and country, we must plead guilty to the charge of enthusiasm. We can hardly consider and discuss this question calmly and logically, so strongly do we feel upon it. Already satisfied that the aggregation of humanity in cities is responsible for most of the physical degeneracy of the human being, we were still more forcibly impressed with this idea when the thought came to us that the first suggestion of the city, the first idea of the aggregation of humanity into collective life, originated in the mind of a murderer, and worse than a murderer,—a fratricide.

We all know that misery loves company, and the physician knows that a man with a guilty conscience cannot enjoy his own company. The man whose mind is clean and pure and wholesome can very well content himself without the companionship of others. We do not mean by this that sociability and good fellowship and comradeship are to be discountenanced, but what we do mean is, that the man whose mind is ill at rest because his conscience tells him that he is not doing that which he should do, that such a man is miserable, unhappy, uneasy, distressed, despondent when alone with himself. And following out this line of thought, we find that before Cain had committed his frightful crime no thought of a city entered his mind. The country was good enough for him, and he was perfectly contented therein. But having murdered his own brother, being driven and chided and goaded almost to desperation by his guilty conscience, the idea suggested itself to his mind of bringing together all the persons that he could and forming a city, an aggregation of individuals, whereby he hopes to secure that distraction from himself that all guilty minds crave.

Of course, we are not foolish enough to imagine for an instant that humanity will ever abandon cities and return to that pristine, natural country life that would be so good for them. But at the same time this Journal is being published, not for the purpose of telling people that black is white because they want to think it so, but to tell them the truth, whether they like it or not. Therefore, while we have no hope, as we said before, that cities will ever be abandoned, yet at the same time there can be no question in the mind of any reasoning, thinking person that the sum total of city life is a menace to the health, physical well-being, and length of life of the human being.



A Seasonable Epitaph.

The following epitaph was recently engraved upon a tombstone in Lincolnshire :

Here lies the body of Johnny dear,
Snatched away by the diarrhoea.

A Simple Hot-Air Bath

is described by Dr. Ferd. C. Valentine, in *Condensed Extracts*, as follows : Place a large alcohol lamp upon a cane-bottom chair, cover it with one part of the elbow of a common stove-pipe ; introduce the other open end under the bed-clothes, and very soon the patient will be enveloped in an atmosphere heated to 150 degrees.

To Escape Vaccination.

The unpopularity of vaccination in England, among parents, is said to have led to a new form of offence, consisting in falsely declaring the place of birth on registering the child. By this means the vigilance of the vaccination officers has been to some extent defeated. To counteract this, the Registrar-General recently had three matrons prosecuted and fined at Marylebone.

The Age of Maturity.

Statistics are said to show that young men do not, on the average, attain full physical maturity until they arrive at the age of 28 years. Professor Scheiller, of Harvard, asserts, as the result of his observations, that young men do not attain to the full measure of their mental faculties before 25 years of age. A shrewd observer has said that "most men are boys until they are 30, and little boys until they are 25 ;" and this accords with the standard of manhood which was fixed at 30 among the ancient Hebrews and other races.—*New York Medical Record*.

Vaccination Matinées in Paris.

Vaccination matinées have become quite the fashion in Paris. Persons belonging to fashionable society co-operate in arranging to have a doctor and a cow at an afternoon tea. The company are all vaccinated from the cow. In some of the large houses on the Champs Elysées, the cow is taken up in the elevator, and is temporarily installed in the dining-room. The cards issued bear the words, "*On vaccinera.*"

A Valuable Constituent of the Human Body.

A chemist computes that at the present market value the average human cadaver contains something like \$18,000 worth of calcium. But, like the fabulous values of aluminum in clay, or of the gold in sea-water, the cost of extraction at present prevents all profit to the would-be enterprising manufacturers, and the schools of anatomy will have no immediate cause for alarm as regards commercial competition.—*Medical News.*

Measles.

Early in the spring of 1891 measles was placed in the list of diseases dangerous to public health. This was in keeping with similar action on the part of other boards of health, and the feelings and recommendations of the State Board of Health. Many people laugh at the idea of trying to control the spread of this disease, as it is considered a child's disease and of no great consequence. No good reason can be advanced for desiring a child to be sick with any disease, even what are termed children's diseases, for what may be all right in one instance may be all wrong in another. Because one child is rugged and can throw off the disease easily is no reason why we should allow that child to run at large freely and even attend school, and be the means of communicating it to a neighbor's or friend's child who may have an impaired physique, thus inflicting on them additional pain or expense, and possibly, in extreme cases, fatal results. As an ounce of prevention is worth a pound of cure, we now require all cases of measles to be reported and placard the premises for a reasonable length of time.—*Annual Report of the Board of Health of the City of Newton, Mass.*

Fermentation Symbolic of Corruption.

The Jews do not, in their feasts, for several purposes, including the marriage feast, ever use any fermented drinks. In their ablutions and libations, both public and private, they employ the fruit of the vine,—that is, fresh grapes,—unfermented grape-juice and raisins, as the symbol of benediction. Fermentation is to them always a symbol of corruption, as in nature and in science it is in itself decay, rottenness.—*Dr. S. McIsaac.*

Coffee as a Prophylactic in Contagious Diseases.

Coffee is recommended in the *Revista Med. de Sevilla*, No. 1, Tomo xxxi, as an efficacious preventive of contagious diseases. A number of observations, especially those of German writers, have confirmed this fact. It is to be taken on an empty stomach. In Germany it has been remarked that persons who were accustomed to take coffee fasting in the morning were not attacked by the cholera, typhoid fever, and other similar affections, while the few who did had only a benign form, with a mortality of 6 per cent.

Artificial Air-Supply for Hospitals.

Dr. John Brady, the lecturer on electricity at Spring Garden Institute, Philadelphia, says that the recent discoveries of a London scientist (Professor Dewar), whereby air can be liquefied and solidified, will make submarine navigation a commercial success. At present it is a scientific success, but the expense is so great that corporations for profit will not touch it, and only powerful governments are able to indulge in the expense of building and operating submarine craft. Under the new discovery, a large amount of solidified air can be stowed away and used as required for the free ventilation of the submerged vessel. As the atmosphere becomes unfit for further use by the passengers, it can be allowed to escape and a new supply at once turned on,—fresh air on tap, as it were. Dr. Brady says that as the effects of storms are felt only to depths of from thirty to forty feet below the surface of the sea, ocean travel by the submerged method will be much more safe, and, besides, will do away with sea-sickness.

There is no reason why hospitals and sick-rooms should not be supplied in the same manner.

The International Sanitary Conference.

The International Sanitary Conference in Paris has formulated important measures to prevent the Mecca pilgrims from spreading cholera. They comprise a system of inspection and quarantine of all persons going to or from that city. The bearing of European emigration upon the spread of the disease will be duly considered from different aspects, and an exhaustive report thereon will soon be prepared.

Bacteria in Artificial Ice.

The Massachusetts State Board of Health concludes, from investigations of artificial ice, that artificial processes of freezing concentrate the impurities of the water in the inner core or the portion last frozen ; that the impurities are least if distilled water is used ; that the number of bacteria in artificial ice is insignificant, under the prevailing methods of manufacture, and that the amount of zinc found in ice is sufficient to cause injury from its use.—*Scientific American*.

Cleanliness.

The mass of literature upon the subject of hygiene is almost appalling, and it does seem to be necessary that the same truisms should be iterated and reiterated time and time again in order that even a few persons may profit thereby. Truthfully, the whole science of hygiene could be written in the one word,—cleanliness. Cleanliness, that is purity of air ; cleanliness, that is purity of water ; cleanliness in and around the house ; cleanliness of person ; cleanliness of dress ; cleanliness of food and feeding ; cleanliness in work ; cleanliness in the habits of the individual,—man and woman ; cleanliness of life and conversation,—could the most ardent sanitarian possibly think of any question of hygiene that would not be thoroughly covered by such universal cleanliness as this ? Unfortunately, the majority of human beings do not think. Their thoughts must be supplied for them ready-made. Hence is it that the same old truths must be repeated time and time again. Whereas, to repeat, the one word cleanliness, followed out to its ultimate and logical conclusions, would really cover and explain the whole science of hygiene.

Japan's Jinriksha Runners.

Jinriksha runners in Japan are hardy fellows. There are not less than 30,000 of them in Tokio alone; and the trade seems a popular one all over the country. One man pulled a jinriksha for over thirty miles, and when asked if he were tired, said: "No, by the grace of God I am never tired," and went on cheerfully for another ten miles.—*London Million*.

Germ in Ice.

It is a fact generally admitted that freezing does not kill disease-germs. Just as with the snake, as he becomes dormant in cold weather, so disease-germs, when frozen, lose for the time being their active vitality, but their life is not destroyed, and when once more set free they are capable of producing disease. This is the rule with most disease-germs, and has generally been supposed to be the rule with all, but as a result of some experiments recently made by Professor Renk, of Halle, it would seem that the germs of cholera are not capable of multiplying after they have been frozen in ice for eight days. Dr. Gihon, of the United States navy, has already told us, in a very able address on the subject, that no disease-germ is more readily destroyed than the germ of cholera, and this fact just reported of its destruction by freezing would only lend additional color to the statement, already made by Dr. Gihon.

Germ as Friends of Humanity.

It is an unfortunate fact that the public at large seem to regard all germs as causes of disease, and whenever one speaks of bacteria visions of disease at once arise in the mind of his listener. This idea is very erroneous. There are an infinite variety of germs, the majority of which are not only harmless so far as the production of disease in the human being is concerned, but they are absolutely essential to the performance of the ordinary phenomena of nature. For example, it is a little germ that manufactures nitric acid as a food-supply for plants. It is bacteria that are the agents for changing the ammonia found in the soil into nitrous acid. Now another set of bacteria change this nitrous acid into nitric acid, from which plants derive their nourishment. Still other bacteria, living in

the roots of certain plants, enable these plants to assimilate nitrogen derived from the air. So that we see that all the phenomena of nature are produced through the agency of bacteria, so to speak. The diseases that are caused by bacteria, as we usually say, are not in reality produced by these little bodies themselves, but these little bodies are merely the agents for the introduction of the poison of the disease into the human body, and its dissemination therein. Hence, hereafter, when we hear talk of bacteria, do not let us at once imagine that disease is about, for we must remember that the infinitely great majority of these little bodies is absolutely harmless, so far as the human body is concerned.

Bank-Notes and Disease.

This Journal does not believe in sensational hygiene, and it has ever preached against introspection. We do not believe in frightening people, nor do we believe that it is good hygiene for one to be over-solicitous about health. Still, we believe in stating always what we believe to be the real dangers to health, and as far as possible suggesting a remedy therefor. On more than one occasion we have called attention to the fact that bank-notes offer a ready medium for the conveyance of disease-germs. These notes, handled by many persons, become greasy from the natural grease given off from the hands, and, becoming greasy, disease-germs will stick to them; while at the same time this very grease, being organic, will offer a medium for the cultivation and propagation of these very germs. Now we learn that Dr. Graham has obtained thirteen colonies of two kinds of bacteria from one dirty bank-note; while from England it is reported that 19,000 disease-germs, including those that cause consumption, diphtheria, and scarlatina, were found on one piece of paper money. These we believe to be facts, and we so record them.

The remedy is to be found, we think, in some measure that will look to the more general issue of new notes, and the retirement of old ones, which, however, seems to us rather impracticable. Therefore, in this connection, as in almost all other connections, we would feel inclined to suggest that the best method of prevention of contagious diseases is to so preserve the general health that any particular disease to which we may be exposed

will not find the body a suitable place for its development. Do not forget that for the development of a germ-disease two conditions are absolutely essential: first, the presence of the germ; secondly, a condition of the body that will be favorable to the development and multiplication of this germ when it is introduced into the body. Disease-germs are omnipresent, and it is, practically speaking, impossible for any of us either to avoid constantly taking them into our bodies, or to secure their universal destruction. But it is possible for each individual in most instances to keep himself in such a condition of health that when these germs do enter the body they will fall upon barren ground, and be evacuated therefrom without having done any harm.

The Minister and the Doctor.

The Queen of Roumania seems to have a good bit of common sense, and very clearly recognizes the dependency of mental manifestations upon physical conditions. "Should you tell your minister that you detest mankind," she remarks, "he would answer that you are not a Christian. If you tell your doctor that you detest mankind, he will give you some medicine to regulate your liver, and at once you become a lover of your fellow-man. Your minister will tell you that suicide is a crime when you tell him that life is not worth living. Your physician looks into the condition of your stomach, and life becomes thoroughly worth living." There is a heap of wisdom in this little witticism of Roumania's queen. Dr. S. Weir Mitchell has pithily told us that no man ever died a happy death whose disease was located below the diaphragm. Bismarck's dyspepsia settled for years the fate of nations, while any one who has read the book of Ecclesiastes must feel perfectly satisfied that the changing moods of King Solomon were directly connected with the condition of his liver. Argument to the contrary notwithstanding, it is an undoubted fact that a man's mental state depends upon his physical condition, and that the man whose health is good is a happy, contented, peaceful man, at rest with himself and his neighbor; and that the majority of so-called ill-temper, bad disposition, crankiness, crossness, and low spirits are due to some disordered state of the physical being.

Disease from Domestic Animals.

There is considerable scepticism in the minds of the public in reference to the possibility of disease being contracted by human beings from the lower animals, and we are not infrequently asked whether such is possible. While, of course, as we are all the time saying, we do not wish to pose as alarmists, yet at the same time there can be no possible question but that very much disease is conveyed and transmitted through the agency of cats, dogs, and other domestic animals; and the practice so common, not only among children but adults as well, of fondling and petting strange animals, of whose antecedent history they know nothing, is most dangerous and reprehensible. Signor Fiocca has recently been making some experiments upon the saliva of the cat, and he finds therein a great variety of bacteria, and among them one so fatal that rabbits and guinea-pigs inoculated with it die in twenty-four hours. It would be the part of wisdom for every one to let strange animals alone.

Boards of Health and Personal Rights.

It is a fundamental dogma of community of life that the rights of the individual must be subservient to the public good. This fact is recognized in connection with the construction of railways and in all municipal movements. Rightly viewed, nothing is more important than the health of the citizens of a community. Hence, there can be considered no instance in which there is more reason for the rights of the individual to fall before the demands for the general good than in regard to the question of the health of a community. That which is sometimes considered necessary by a board of health in order that a community may be protected from disease seems like a hardship upon an individual, and in many cases it really does work a hardship. But at the same time it is a necessity. We have always felt that the government should make some provision whereby any loss that is entailed upon an individual unable to stand this loss, in the protection of the public health, should be made good. This is but an act of common justice. But at the same time, whether this be done or not, we most emphatically feel that the instructions of the board of health must be strictly and fully carried out, no matter what may be the inconvenience or the hardship entailed upon the individual thereby.

Sneezing and Health.

Mr. Jonathan Hutchinson is one of England's greatest surgeons. Hence we feel justified in calling attention to the fact that he makes the statement that he does not recollect to have ever seen any but fairly healthy persons sneeze. At first sight this may seem like a very trivial matter, and hardly worthy of notice; but when we remember that the majority of persons breathe through the nose, and that the air is full of germs of various kinds of disease, which, passing in the inside of the nostrils, are arrested by and deposited upon the moist lining membrane of the nose, and when we remember that sneezing is a violent expiratory effort, by which anything lodged in the nose is expelled, would it not seem at least reasonable to suppose that the act of sneezing might be one of nature's efforts to rid the body of disease-germs that had found their way into the nose in the atmosphere? If there be anything in this idea, it would seem as though we might say, not that a person sneezes because he is healthy, but that he is healthy because he sneezes.

Buried Alive.

We have more than once made the statement in this Journal that, practically speaking, no one is ever buried alive. Yet there is a certain feeling of unrest, particularly among nervous persons, on this subject. It is barely possible that in times of frightful plagues, when interment follows almost immediately upon death, that persons may have been buried before life was absolutely extinct. Granting that this may have been the case, we yet assert that it would be utterly impossible for one so buried to ever regain consciousness. Hence the stories of persons turning in their graves, and the tales of frantic efforts to liberate one's self from the coffin may be accepted as fables without one grain of truth. To calm the fears of those who are morbidly sensitive on this subject, we would say that Dr. Bouchard, in a paper relating to premature interments, which has received the sanction and approval of the Institute of France, states that when the temperature of the body falls below 68° F., it is a certain sign of death. In this we have then an absolutely unfailing sign that can be used by any one who may have this morbid fear that some one near and dear to them is about to be buried before life is absolutely extinct.

Habit.

Habit is controlled and corrected by habit, and we are all creatures of habit, and the majority of us creatures of very bad habits, so far as health and longevity are concerned. Did we but realize and recognize the fact that habit is corrected by habit, as we have said, and that good habits, if cultivated, would be just as natural and easy of acquisition as bad habits, we imagine that all of us would be very ready to make at least a slight effort to substitute our faulty habits with those that would be for our good. Very few persons act upon reason. The majority of humanity is guided solely by impulse, and that which has become a habit is that which we are always doing. The readers of this Journal as a class are thoughtful persons. If they were not they would have no use for such a journal. We would, therefore, suggest to them that they look into their habits of life, and when they have recognized certain habits that are not favorable to health, that they should endeavor to overcome these faulty habits by cultivating those of a more beneficent nature. Lord Brougham tells us that he who makes sobriety a habit finds intemperance hateful. To him who makes prudence a habit, profligacy will be as contrary to his nature as the most atrocious crimes would be to any of us.

To Filter Water Upward.

An Italian inventor in New York has just devised a water-filter, the principle of which embodies a theory of his own, that water is best filtered upward instead of from the bottom. The inventor has had built a large can which has a conical-shaped bottom. Into this is poured impure water. A floating filter is put into this vessel, which has a mole-skin-covered bottom.

The water is filtered upward by suction through the mole-skin and passes down through a pipe into a catch-basin. The floating filter settles down into the bottom of the can as the water is exhausted. All impurities settle into the cone, where they are drawn off through a tap.

The advantage of filtering water upward rather than downward is obvious. When water is filtered downward, it has to be strained through the accumulation of impurities. In filtering upward, the impurities fall to the bottom of the vessel.

The inventor claims that his scheme is applicable to large water plants.

Consanguinity in Marriage.

This very much debated question seems to be very imperfectly understood, and yet to our way of thinking it is as plain as the sun in the heavens. Cain and Abel married their own sisters, because they couldn't help themselves. There were no other women in existence at the time. Cain and Abel and their wives were perfectly healthy physically, and the relationship between the parents produced no ill-effects whatsoever upon their offspring, and in this fact, to our way of thinking, we have explained the whole scientific aspect of the question of consanguinity. The scientific reason that marriage has been forbidden within certain degrees of consanguinity is because any family defect, weakness, or transmitted disease will be liable to ramify more or less throughout the different branches of the family; and if two members of this family sufficiently closely related to come within the influence of this physical defect should marry, their offspring will be very likely to have transmitted to them the intensified defect; intensified because it has been derived from both parents. But where perfect physical health exists, there is no scientific reason against the intermarriage of closely-related persons.

Tuberculosis in Cattle.

This would seem to be an age of tuberculosis mania almost, so to speak. While it is an undoubted fact that cattle do suffer from tuberculous disease very similar in its manifestations to that in the human being, and that this disease can be conveyed from cattle to the human being in the milk and the beef that are consumed, yet at the same time, in comparison with the number of persons who drink milk and eat beef, those who are afflicted with tuberculosis is infinitely small. There is danger in a man walking down the street and passing a building that is in course of erection, as a brick may fall therefrom and crush his skull. But this accident so rarely happens that it does not deter persons from walking down the street. So is it, we think, with this question of tuberculosis from cattle. Of course, ordinary precautions, such as thoroughly cooking our meat, and, if we please, sterilizing our milk, can be resorted to, but we would earnestly urge upon our friends not to let the danger of contracting disease in this way keep them awake at nights.



**Discussions on Papers Read at the Seventh State
Sanitary Association, January 26, 27, 1894.**

[CONCLUDED FROM PAGE 298.]

Mr. W. W. FRANTZ, of Waynesboro : There are some thoughts suggesting themselves to me that may be appropriate. It is very evident that for efficient work it is necessary that the municipal branch of the corporation shall be in entire harmony with the action of the local board of health on all hygienic regulations. Now, it is possible the Act of May 11, 1893, compels the board of health to turn over to the borough treasurer of each municipal corporation all moneys received for fines, licenses, or any moneys possible received by the local board of health. In addition, that Act provides that that municipal corporation itself must be the spring from which flows the board of health and its beneficent influences. It has the appointing power. Now, if it be possible, leave the appointing power of the board of health in the municipal corporation ; and separate from the municipal corporation the executive power of that board of health, which means the money power ; and it would seem to be a happy solution of many difficulties.

That leads me to remark that through the kindness of the secretary of the State Board of Health I have been advised that license fees can be collected. By the courtesy of the courts of Franklin County, next week that advice received from Dr. Lee, the secretary of the State Board of Health, will be reinforced by the trial of three cases in our court. Those three cases will be prosecuted for delinquent licenses.

Now, presuming that licenses are collectible by the board of health, those licenses should be collected from those persons who are engaged in those avocations in life which, while themselves a nuisance in a general way, must yet be tolerated because they are a necessity for the public weal, such as slaughter-houses, livery-stables, pig-pens, distilleries, and gas-works.

Now, if it is in the power of the local board of health to prescribe that license, and to collect that license under the statutory law, then the moneys derived from that system shall be turned over to the municipal corporation which created that body ; and so far everything is smooth sailing. But is not the balance of power too far for co-ordination with the municipal corporation ? Let us see. Are there any instances by which the municipal corporation, which appoints the members of the board, can ever be in antagonism ? Suppose that borough has an open sewer through it. Complaints are made by those owning property contiguous to that sewer to the board of health, and are made in due form. Then the board of health itself becomes the prosecutor against the power that created that board of health, and yet the power that holds all the moneys in its treasury, or, in

other words, the borough council, which means the prosecution of the case by the board of health against the power that created the board of health, and holds the pocket-book. Now, is it possible to separate these offices? If it is, it can only be done in one way, apparently, as far as my limited knowledge of the question goes,—that is, by a uniformity of licenses throughout the State in towns of the same populations and of the same class, and the local boards to collect and retain them to a fixed amount. In our own borough each liveryman pays \$5 a year license; each distillery pays \$5 a year license; and each slaughter-house which comes in there pays the same; each meat-shop for the retailing of meat pays \$2; each man selling green groceries pays \$2; every one having a pig-pen pays 50 cents. It seems to me in the line of duty that we have as a board of health we are compelled to have within the scope of our knowledge all these places which may be at all dangerous, real or imaginary, to the public health. We can obtain that information by two ways: either by sending our health officers throughout that entire borough, and making a sanitary inspection of the premises in that borough, or else by having the citizens of that borough come to the health office individually and report that which they are empowered to maintain, as to government officers. After the officers get it, we make a register of it, and we issue them a license, which is simply a promise on their part to maintain those premises in such a condition that they violate in no particular the laws of the State Board of Health, or of the local board, or the laws of this Commonwealth. In that way we have in our hands the registration of every place in the borough that may be the cause of any infectious disease. Until there is a particular complaint made about a particular place, we presume that those gentlemen who are honorable enough to come into that office and register themselves and pay for the registration and the license fee, as they call it, have kept their premises in such condition as they had promised to.

Now, in order to have a regulation of that kind entirely effective, it will be necessary to avoid differences in particular boroughs; that license fees on different businesses be on the same basis. In the first place, it will be necessary, or may be, for each board of health to take care of its own fees, and only pay them to the municipal corporation in case of excess. If it should be the sense of this conference, in furtherance of that matter a resolution might be passed fixing the license fees of particular avocations in any portion of the State, so that the law may become general, and so that no particular quibbling can be had on any portion of it.

JAMES G. BENTLEY, M.D., of Scranton: Unfortunately, we find that upon matters of sanitation the people are very ignorant, and consequently they are slow to pass laws giving money to boards of health for the carrying out of sanitary regulations in any community.

Now, in the city of Scranton, the board, of which I am a member, is one of the oldest in the State. It was organized in 1878. We are working under the Act of Assembly of 1889, which includes cities of the third class, and under a different Act from which our friends are trying to organize local boards throughout the towns and boroughs. But we have had, as the gentleman from Clearfield has stated, great trouble, and have been handicapped in our work in the city by reason of the apathy of the councils.

They would not give us sufficient money to keep the city in good sanitary shape; and for that reason we have been working for years in order to get an appropriation sufficient to keep the city in the best possible sanitary condition, and a great many times we have failed. But we have not been discouraged. At present we can say that the city of Scranton is in one of the best possible sanitary conditions, probably as good as any city of its size in the Commonwealth. We have oftentimes been discouraged by lack of appropriation, and from the fact that, as we believe, as a board, the powers of the local board to a certain extent, and very largely, were not independent of the councils; and from the fact that in our city the members of the board of health, by the Act of Assembly of 1889, are appointed by the mayor, and the mayor certainly has a chance to appoint fair citizens upon the board, being an office which is filled by appointment. Consequently we felt that the judgment of the board, under the circumstances, should be to a large extent independent of the councils; and I would be very glad to have the legal committee that was appointed this morning give that matter consideration.

If we could get at a certain question, so that the local board might be able to pay their bills, and that they might be able to do certain things which they are now compelled to go to the councils for, much more could be accomplished. If there is anything that is unconstitutional in an Act of that kind, of course, that doubtless settles it, and we will have to work as we have done. But I would be glad if the committee would take that into consideration, and see if the powers and the possibilities of the local boards cannot be removed, as the gentleman from Clearfield has suggested, from under the direct power of the councils.

Now, we have been trying in our city to get a crematory. We have an immense amount of garbage accumulating continually. As I said, we had for years tried to get a crematory, but could not do it; and we could not get the appropriation of a dollar. But when the scare of cholera came, and it was threatened in New York City last year, the councilmen almost tumbled over each other to get to the council-room to appropriate us \$6000 from which we could purchase the article mentioned. The crematory we got is used for nothing except the burning of garbage and barrels and boxes and rotten fish and things of that kind. It is worth double what it cost.

Now, gentlemen, do not be discouraged. This is a good omen. The meeting of this Convention is one of the best things that has ever occurred since the State was organized. It is, beyond a doubt. Do not be discouraged. You will have to wade through the same troubles we have waded through. But time and patience and education upon the corner-stone, upon which sanitation depends, will accomplish the result. Do not try to do too much in too short a time. You have got to take a little time, and be constantly at it. Be energetic. Go before the Legislature at every session with something that will advance and encourage sanitation; and when the people become educated up to the point that they will understand that sanitation as a measure is a greater remedy for the prevention of disease than medicine is to cure it, you can get all you ask for.

Mr. EDWARD S. WAGONER, of Mechanicsburg: As chairman of the committee in regard to that matter, I would say it would be impossible for

the committee to take it into consideration. The law is mandatory upon the part of the local boards of health to draw their resources from the town council. As I understand it, and unless I very seriously misapprehend it, the law is positively mandatory upon the council to comply with the requests of the local board of health; and I venture the assertion here, and place my reputation at stake, although not an attorney, that if any local board of health will carry that question before the courts, that there is not a President Judge in the State of Pennsylvania, or a Justice of the Supreme Court, who will not sustain it. It is certainly mandatory, if I can read the Act at all.

Colonel WEAVER, of Norristown: I desire to ask a question. It is a load on my mind, and I want to unload before I go home. It is in abating a nuisance whether we are compelled to abate it to the injury of the property, when we can improve the property and abate it a little cheaper? Now, I have a case in point, and it is the same case I mentioned to Major Veale, where we improve a property very materially, and perhaps a thousand dollars' worth, and brought in a bill for \$400, which was rejected on a technicality. We proposed that expense, rather than a greater expense, by merely abating the nuisance without improving the property. The question is whether the property owners are liable for that expense? We laid bricks,—brick and iron,—put in the iron; put in water, and cut off the water in one place, and put in another place the privy-wells. We have done it at the least possible expense to abate the nuisance.

Major VEALE: Where the board has declared that a nuisance exists, on failure of the owner to abate the nuisance, the health authorities can abate it in the best possible way; but after the nuisance is abated they cannot go any further and improve the property. In other words, the cheapest and best mode of abating the nuisance must be pursued by the health authorities, because that is about the only question that the courts will inquire into where a lien is filed for the abatement of a nuisance, when the bill is not paid, as to the cost of abatement; and whether the entire expenditure has been made in the actual abatement of the nuisance, and not upon the improvement of the property. The Supreme Court has decided in a case in the city of Philadelphia, where the board had ordered the abatement of a nuisance and the construction of a hopper water-closet, that the nuisance should be abated, but that the board could not go any further and improve the property,—that they can abate the nuisance and remove the cause of the nuisance. The removal of the cause of the nuisance is included in the operation, as well as removing the nuisance as it existed itself; but no power exists to go on and improve the property.

Mr. SHAW: The question is whether I am compelled to take the whole out of the ground, and pay the \$500, or whether I shall go to another expense and improve that property to the extent of a \$1000.

Major VEALE: The mode of abatement without improving the property is a question entirely for the board,—as to the mode of removing the nuisance. If they will simply confine themselves to the removal of that, and the removal of the cause, there is no question beyond that as to the improving of the property. If the improvement of the property is merely an incident to the removal of the cause, then, of course, the improvement of

the property is not a question that the board of health has anything to do with. Of course, in the case that he refers to, or I presume it is a case where the entire merits were not given, and that technicality was taken advantage of by the property owners when it was carried before the court.

The PRESIDENT: If there is no objection, the secretary will read the by-laws, section by section.

The first section was read by the secretary.

Mr. WAGONER: I move the adoption of the first section as read.

The PRESIDENT: Let me make one suggestion. I would make that the "State Association," so as to identify this with other State organizations, as the State Agricultural Society, and so on.

Dr. LEE: I move its adoption as corrected. The motion was seconded by Mr. Wagoner, and agreed to.

The second section was read and, on motion, adopted.

The third section was read, and a motion made and seconded that it be adopted.

Dr. LEE: Simply as a question of verbal accuracy, I would suggest that instead of the word "membership" the word "members" be used. As I understand, membership is simply the right that a person has to be a member of the association. If any gentleman will correct me on that point, I shall be pleased to have him do so.

Mr. WAGONER: The exception is well taken on a point of etymology, as well as philology, and we accept it.

Dr. Atkinson moved its adoption. The motion was seconded by Mr. Wagoner, and agreed to.

The fourth section was read and adopted.

The fifth section was read as follows: "Officers. The Governor of this Commonwealth shall be the President of this Association."

Mr. WAGONER: I move its adoption by a rising vote. The motion was seconded and unanimously agreed to, every delegate rising to his feet.

The remainder of the section was read as follows: "There shall be a first vice-president, a second and third vice-presidents." Adopted.

The following section was read: "There shall be a secretary and treasurer, who shall also be elected from the members." Adopted.

The next section was read and adopted. Also the section following, relative to the duties of the Executive Committee. Also the section relative to the Legislative Committee.

The following section was read: "There shall be a committee on publication, consisting of three members."

A. F. BRONSON, M.D., of Girardville: While I am heartily in sympathy with the idea of forming a publication committee from this body, I think there is a danger of its having a clash at some time, where legislating for the conference, with the State Board of Health. You will have a committee from this Convention, by establishing a separate committee, to perform a duty that the State board are striving to perform at this time. They are a part of this body, and if we establish a publication committee, why not say that the State board shall compose that committee? To go a little further, my idea is that the revenues, or the disbursements of the revenues of this association or Convention, should be put at the disposal of the State Board

of Health. I do not see the need or the use of two bodies occupying the same field. The State Board of Health is, after all, the body to which the members of this association will turn for help, and we should be in the line of assistance to our State Board of Health, and not attempt to occupy the field that they are now occupying. We should aid them rather than get up a set of officers who may disagree with the State board in their manner of treatment of subjects for publication. We will have a whole lot of publishing to do through the State Board of Health, and recommend certain things, and possibly this committee on publication of this society may recommend something else; and, instead of resulting in good, we will have another condition of affairs.

Mr. M. G. LIPPERT, of Phoenixville: Mr. President and Gentlemen of the Convention: I was under the impression that this committee on publication was to have referred to it all matters for publication. This matter of publication is intended to cover the proceedings of this Convention, and at the same time to include addresses to the public, such, for instance, as I have suggested in my paper read yesterday before the Convention,—addresses to the press, to the medical profession, and to the schools. I think it would be asking too much of the State board to take up that work. I think they have enough to do. However, if the State board will do it, I think the Convention will cheerfully accept such a suggestion from that body. But if this State Convention is to do that work, I do not see why the State board should be charged with these particular duties.

A DELEGATE: Instead of the State board assisting us in that, we should turn around and assist them in the publication of such matters as may be necessary.

Professor A. WANNER, of York: Suppose this association passes such an important matter as the length of quarantining after convalescence in the case of small-pox, diphtheria, or any important matter like that, will the action of this Convention necessarily agree with that of the State Board of Health? So there are a number of other questions of the same sort. Any conflict or difference of opinion among the bodies must be fraught with serious injury to the cause which they represent. If, on the other hand, this body agrees with the State Board of Health, then why these two separate committees?

Mr. WAGONER: Mr. President: In reply to the gentleman who has just taken his seat, it must be first understood that there is a State Board of Health. It must next be understood that this is a State Sanitary Convention. Now, how could it be possible that a State Sanitary Convention could for one moment be thought to cross swords with the State Board of Health, when every intelligent gentleman,—physician, or of the laity,—who is here present, would realize the fact for the moment that they could not combat with the State Board of Health, and thereby as securely preserve or better the condition of the health of the State? Not for one moment. And the only object, as any person knows, who knows this committee on legislation, was this idea: The State Board of Health has for their exponent, or organ, and mouthpiece, *THE ANNALS OF HYGIENE*. Now, all of the members of this Convention are not subscribers to that journal, I am sorry to say. I wish it were so, that every man on this floor was a subscriber; but we know

that we are not all subscribers to the ANNALS OF HYGIENE, through which the publication of these papers and discussions, which have been read and discussed, will be given to the public. We have provided that the proceedings of the Convention shall be published, so as to be disseminated to the local boards of health, and into localities where they may have the benefit of such views as may be gathered from the minds of years of experience and knowledge, as compose this Convention.

PEMBERTON DUDLEY, M.D., of Philadelphia: I do not think we are running into a snarl by the adoption of a matter of this kind, taking the illustration that has just been presented to us. We all know that the sanitary association will have no legal authority. If the State board give any instructions in reference to quarantining, for instance, that goes by authority; that is legal; it must be obeyed. But we as a body—as a sanitary association—cannot do any such thing as that. We will be helpful to each other, perhaps; but outside of that we have no power. Now, if this body recommends certain matters in reference to quarantine, the State Board of Health would probably accept them as valuable, as useful, as a guide, and would formulate its own utterances in accordance therewith, I have no doubt, because they would all see that this body is a sanitation body representing the practical experience of the whole State. But now suppose this conference should issue such a statement as that, and suggest such and such a quarantine, with rules and regulations, it would still be without authority; it would simply go back from this body to the individual boards, and if each board issued it, it would be local in its authority, and nobody would be interfered with beyond that locality. The State board could adopt it as among the rules and laws of its organization or not. At the same time, it would be useful for us all.

I do not think we are running into a snarl; but I would like to see some explicit statement in the by-laws setting forth what it seeks to publish. Of course, this body has the right to speak to the public, and has the right to affirm.

T. E. PARKE, M.D., of Downingtown: As I understand it, this contemplated organization is entirely separate from the board of health, and I think we have a right to our own committees. I do not think there is any clashing at all; it is entirely separate.

The PRESIDENT: Let me suggest that this organization will be on the plane largely of the State Agricultural Society. We have a State Board of Agriculture, to which appropriations are annually made; and then there is a State Agricultural Society, which is distinct and entirely separate from the State board, and has no associations with that society. But the papers prepared by the State Agricultural Society, and read at times, are published in the same volume as those of the State Board of Agriculture. They have discussions, such as we have here, or as any State organization has, and these are published as official. So what the State board publishes is official; but they are hedged about by laws. There are many things that this Convention could do that the State Board of Health could not do, because of laws prescribing their duties. There should not be any conflict with this Convention, as it is largely advisory to the State Board of Health. I do not see, therefore, that you will have any difficulty.

Dr. LEE: Possibly if the Convention understands just in what way the State Board of Health is enabled to issue publications, it may lead them to decide more intelligently upon this question. The State printer fortunately has authority to issue small pamphlets upon the order of the different departments, such, for instance, as the circulars which this board has issued, and which will be distributed on the floor of the Convention, and sent elsewhere on the request of any board of the State. But the State printer cannot upon such order issue a volume other than the volume of transactions, or more properly the annual report of the board. Therefore, if the State Board of Health wishes to issue such a volume as would be necessary to include the papers and proceedings of this Convention, the only way that it can do it is to make it a part of its annual report.

Now, that annual report can never appear in a shorter period than one year after the occurrence of any event or the meeting of any convention. You will see, therefore, that if the proceedings of this Convention are to be published by the State Board of Health, they will not appear for at least a year.

In addition to that, the State Board of Health is not entitled to more than 500 copies of any such volume,—that is to say, it can order out of its report a certain excerpt for itself; but it is entitled to only 500.

Now, I submit that a very considerably greater number of the reports of this conference is a necessity, if it is to reach the number of persons whom it ought to.

For these two reasons I feel that the suggestion that the committee made this morning is a wise one. I do not anticipate the slightest danger of any clashing or any friction between the State Board of Health and this body. The State Board of Health hopes to make the reports of proceedings of this Convention a part of its annual report. In that shape they will be preserved forever, I may say, in substantial volumes, which will be placed in all the great public libraries of the United States and of Europe for future reference. But what you want now is something which will convey as soon as possible to the people the results which have been here arrived at, and the information which we have received. I can say, therefore, that it would be very unwise to wait for the tedious process of the publication of the State Board of Health.

Mr. M. G. LIPPERT, of Phoenixville: I think the following amendment would probably restore the harmony which some of the gentlemen fear will be sacrificed by a separate committee. I move that the section be amended so as to read, "The secretary of the State Board of Health and the secretary of the association shall be *ex-officio* members of this committee." This would insure the representation of the State board on the Committee on Publication.

Dr. DUDLEY: How many will the whole committee consist of?

Mr. LIPPERT: Five in all: the three members and the secretaries, *ex-officio*.

Mr. BRONSON: I second the amendment.

The PRESIDENT: Will the committee accept the amendment? Of course, it comes from Mr. Lippert, one of the committee?

Mr. WAGONER: I am authorized to state that the committee will accept the amendment as proposed.

The section was then read as amended, and adopted.

The SECRETARY then read the section on appointment of committees, which was adopted. Also the section following, which was adopted. Also the following section: "Meetings.—The association shall meet annually at the capital of the State, at such time as shall be determined by the executive committee." Adopted.

The section following was also read and adopted. Also the section relative to the remittance of dues. Also the concluding section.

Mr. WAGONER: I move the adoption of the report as a whole. The motion was seconded and agreed to.

J. B. TWEEDLE, M.D., of Weatherly: In order to effect the election of a secretary, I nominate Dr. William B. Atkinson for that office.

Mr. WAGONER: I move that the election be had by a rising vote. Unanimously agreed to.

Mr. JOSEPH SHAW, of Norristown: I would like to understand fully whether or not this is to be a convention of the separate boards of health, after the adoption of the constitution and by-laws and the election of officers, or whether we shall reorganize for that purpose after this meeting is over?

The PRESIDENT: I understand this is a conference of the different boards of health called together by the State Board of Health, and that as soon as they convened here they adopted a resolution, and referred it to the Committee on Legislation, with instructions to that committee to report a form of organization of this conference into a permanent association. I understand this permanent association is provided for in the by-laws.

Mr. SHAW: That is quite sufficient, inasmuch as the president of that organization is president of this.

Dr. LEE: I would nominate Mr. Moritz G. Lippert, of Phoenixville, as the treasurer of this association.

Mr. LIPPERT: I respectfully decline the nomination, although I am obliged to Dr. Lee for the honor conferred upon me. I am only an engineer, and nothing of a financier.

Mr. BRONSON: Before we elect a treasurer, I think we should have an addition to the by-laws. In all well-regulated associations the treasurer is required to give bond for the faithful performance of his duties. I therefore move that the treasurer of this association be required to give bonds to the amount of \$5000.

Dr. LEE: Should not that be made a portion of the by-laws that we have just adopted, instead of a simple motion?

Mr. BRONSON: That was the intention; but the by-laws have been adopted as a whole without making any provision for an amendment to them at all. They are incomplete in that. But since we have adopted them entire without a provision as to amendment, by a simple motion we can, of course, amend.

Mr. WAGONER: You can elect your treasurer first.

The PRESIDENT: Dr. Lee handles all the moneys from the State which apply to the board of health, at least he must make the order; and he would be a proper custodian of any funds.

Dr. TWEEDLE: I move that Dr. Lee be made the treasurer of this association.

Dr. LEE: I thank you; but I do sincerely hope the association will not elect me treasurer.

Dr. TWEEDLE: I am not surprised that the gentleman hesitates about accepting it, if he has to give \$5000 bond. It is probable that the treasurer will not become the custodian of as much as \$2000 in one year for some time to come; and it is doubtful whether he will have \$1000 for weeks at a time. To give a \$5000 bond and his services free, it seems to me, is too much for any good-natured person.

DAVID F. SWISHER, M.D., of Darby: I second the nomination.

Dr. LEE: The thought has been in my mind ever since it was proposed to have a distinct organization, and a permanent organization of this body, that it would be better if the officers of the one should be quite distinct from the officers of the other.

Dr. DUDLEY: Would not Mr. Crosby Gray be a good man for treasurer?

T. E. PARKE, M.D., of Downingtown: I heartily second the sentiment of Dr. Lee, and I would name Dr. Jesse C. Green, of West Chester, as treasurer of this association. The nomination was seconded by Mr. Wagoner, and agreed to.

Dr. GREEN: Probably there is no objection,—but I have been a treasurer for a great many years, and I have never given a bond yet, and I do not propose to do so now.

PRESTON WILSON, M.D., of Clearfield: It seems to me there should be no reason now why the treasurer should not give a bond. It is a business feature that applies throughout the State, no matter what office. It runs through every State department and all municipal government. It is a part and parcel of the statutes, where any municipal officer is paid any amount of money to be kept in custody. Members of this body know some of the other members; not all of them; and it is not imputed to any of them that they are not honest. But at the same time the proper thing is, if we are to pay our money to somebody that we do not know, that that person should give us a proper bond for the faithful performance of his duties. It is a business principle, without any sentiment about it.

Mr. WAGONER: I agree with the gentleman from Clearfield; and if the gentleman cannot secure any bondsmen in Chester County, if he will come to Cumberland County, I will get him all the bond necessary.

Dr. GREEN: I have been the treasurer of a State and other organizations, but I have never given a bond except as a school officer. And I should not select any man whom the association knows. I do not ask anybody to go on my bond, and I do not want to go on any other person's.

The PRESIDENT: The motion to adopt such a resolution has not been seconded.

Mr. BRONSON: The question under discussion was the giving of a bond, and it drifted off to the election of the treasurer, before settling it. My motion was to prevent just what we have raised. I make that motion now, that the treasurer be requested to give a bond to the amount of \$5000.

Mr. JAMES H. HARLOW, of Edgewood: I move that the bond be from a surety company, the premium to be paid by the association.

Mr. ANDREW COMREY, of Mahanoy City: It seems to me that it will be more than necessary to fix the bond at \$5000, when the statement is made that the sum coming into the hands of the treasurer will be less than \$2500. It strikes me that if the association determines to pay the cost of the bond in some surety company, that \$3000 or \$3500 should be plenty.

Mr. BRONSON: Mr. President, can you tell the entire number of local boards that will be formed under this Act?

The PRESIDENT: There are 747 boroughs in the State.

Mr. LIPPERT: The association, as I understand, will take in also the cities of the third and fourth class?

The PRESIDENT: Yes, sir.

Mr. LIPPERT: How many will they add to the number 747?

The PRESIDENT: It will amount to possibly 780.

Dr. TWEEDLE: I move to amend the motion, to make it \$3000, instead of \$5000. The amendment was duly seconded.

Mr. SHAW: If the treasurer goes and pays the premium on that bond himself out of the funds that he holds in his hands, it seems to me that it will not be a bond at all, if he choose to let it lapse.

Mr. BRONSON: The difference between \$3000 and \$5000 would be no difference worth mentioning,—less than \$25. The bond from a surety company will cost from \$30 to \$50 for either amount. If it is worth a bond at all, I cannot see why this amendment should not be defeated, and the bond placed at \$5000.

Dr. TWEEDLE: If that is the amount, I will withdraw the amendment.

The PRESIDENT: About one per cent. a year in a surety company.

The amendment was thereupon withdrawn, and the motion, as originally made, adopted.

The PRESIDENT: If there is no other business, we will take up the regular programme. It has been suggested that we proceed with the reading of all the essays before we have discussion.

The first essay is entitled "A Few Needed Reforms in the Health Service," by Crosby Gray, Esq., Department of Public Safety, Pittsburg. (See page 155.)

The PRESIDENT: The next essay is a paper by Pemberton Dudley, M.D., Member of the State Board of Health.

Dr. PEMBERTON DUDLEY: Mr. President, I had practically declined the invitation to prepare a paper for the Convention; but that man Edwards is a sort of terror to a certain class of evil doers,—those who commit the sin of omission,—and so he put me down for a paper. You will therefore modify your expectations in regard to the matter by that fact.

I have written a very brief paper on "Local Sanitary Associations as an Aid to Local Health Boards." (See page 190.)

The PRESIDENT: The next paper is an essay, "The Ounce of Prevention," by Abraham M. Beitler, Director of the Department of Public Safety of Philadelphia. (See page 193.)

Dr. LEE: Mr. President, without wishing to anticipate the very interesting discussion which must follow these valuable papers, I desire to take exception to one single statement in the most interesting and most valuable paper to which we have just listened. The essayist, with his usual modesty,

—and you will pardon him, he cannot help it; he was born in Philadelphia, and all Philadelphians are modest; I may say so, because I was not born in that city; if I had been consulted in the matter, I should have been, but the statement that the essayist made in the opening of the paper was that he had given very little time to these matters. Now I wish to controvert that statement. The fact is that I do not know how he has had time to attend to anything else. The fact, furthermore, is—and Major Veale, as Health Officer of Philadelphia, will confirm the statement—that no one who has occupied the high position that the essayist now holds has given one-half of the time or one-half of the thought to these important matters that he has.

Dr. WILSON, of Clearfield: Mr. President, I do not wish to break in upon the proceedings at this time, but I have had a paper laid in my hands, called "Sanitary Convention under the Auspices of the State Board of Health of Pennsylvania," and I notice on page seven, in the "List of Boards represented with Delegates from Each," that Clearfield is not in that list. I do not know whether this is intentional or not, but I would like to have it corrected.

J. F. EDWARDS, M.D., of Philadelphia: I can only answer that the Clearfield board did not notify the committee that you were coming.

Dr. WILSON: I called to see you at the Commonwealth Hotel, and gave you my name and the board I represented.

Dr. EDWARDS: Yes, after you arrived in Harrisburg. The State printer has included some of those who registered after arrival, but not all, as the time was too short. I can say that anybody, or board, or delegate that notified the chairman of the committee up to last Tuesday night is on this list. We did the very best we could afterwards. I am very sorry that the gentleman's name and borough are not there.

Dr. HAMNETT, of Homestead: I also see that the good borough of Homestead is not on the printed list. But it is on the written list; at least I registered as well as I could, and I have the documents in my pocket. I would like to get a revised copy.

Dr. EDWARDS: All I would like to say in reply is that I did the best I could. I sent out circulars to each local board. The first circular did not meet with a full response, and the second circular went out almost begging for the names of the delegates who would be present, and stating that a list would be published. I held that list open until last Tuesday, and when I came here on Thursday night I notified the printer of all additional names; but he could not get all the names on the list at that late hour. I know that some are not on the list who are present, and some are on who are absent.

Dr. HAMNETT: Will you have a revised copy?

Dr. EDWARDS: Yes, sir; but it will not be out for a week. For instance, Mr. Orlady is not present. I have a letter in which I am officially informed that he would be present, hence I inserted the name.

A DELEGATE: On page five Mr. Wilson will find his name, and also the name of the Clearfield board. It seems to me that the list is right as far as the delegates are present, as the number is the same as the original list. In the corrected list, the delegates, I think, will find all the names of those who have registered.

MR. R. B. FRANTZ, of Waynesboro : Mr. President, I move that we extend a vote of thanks to Dr. J. F. Edwards for his diligence in doing what he has done for the success of this Convention, and the successful manner in which he has brought the members of this conference together. The motion was seconded and agreed to, whereupon the President said : Dr. Edwards, on behalf of the association assembled in this Convention, I thank you for your diligence in doing so much towards the success of this Convention, and for the excellent manner in which you have brought the members of this conference together.

MR. WAGONER : Mr. President, I move that the revised list of the delegates be prepared by the secretary of the Sanitary Convention, and that such delegates as have not had their names printed on the list come forward and report their names, with the board they represent, to the secretary, Dr. Atkinson. The motion was seconded and unanimously agreed to.

MR. HOWARD MURPHY, C.E., of Philadelphia : Mr. President, I thought, as I was in a position to do so, I would prepare a specimen of the water that the citizens of the capital have been using, as well as the members of the Legislature and others, during the session,—that is, those of them who use any water at all. I obtained a sample yesterday of the water from the pitcher in the hotel, and purchased a sample of distilled water. This is the distilled water, and this is the water of the river, treated with a little permanganate of potash last evening, so as to precipitate the foreign material. The sediment consists largely of culm ; some of it, I think, without further examination, is coated by a slimy organic coating taken from the river. By holding it before the screen I think you notice the difference.

Dr. DUDLEY : It is both food and drink.

MR. MURPHY : I have seen Harrisburg water when the culm was coming down the river in a worse condition than that. I noticed particularly in this that the particles of culm are not so large as they have been in other specimens of water. Some of the chemicals would not show in use without an immense quantity of the water. As members of the Sanitary Convention have been drinking nothing but water since they have been here, I thought it would be a shame to show it until the latter part of the Convention. If we are bound to have color in it, we may as well have color that means something.

MR. JAMES H. HARLOW, C.E., of Edgewood : And that is a sample of Harrisburg water ? The chances are that those are fair samples of the water of the State with a very few exceptions.

THE PRESIDENT : The papers are now before the Convention for discussion.

Dr. LEE : Before discussion is opened, I would like to move that, as there is a provision in the Constitution which we have adopted for the election of honorary members, Dr. John H. Rauch, late secretary of the State Board of Health of Illinois, be elected an honorary member of this association. The motion was seconded by a number and unanimously agreed to.

THE PRESIDENT : We are very glad to welcome you, sir, as an honorary member of this association, and its first honorary member.

Dr. RAUCH : I thank you.

Secretary ATKINSON : Mr. President, before we go any further, or before

we lose sight of the matter, I would like to have every delegate whose name has not been placed on the roll to present his name to me. Then I will be prepared to have it printed correctly.

Dr. J. H. RAUCH: Mr. President, I did intend before this to express my gratification at this Convention. I think from indications that Pennsylvania will redeem herself in regard to sanitary matters. From the commencement of this century up to about 1860, as far as sanitation and taking care of the public health were concerned, Pennsylvania was ahead of any other State in the Union, but since then it has not been. I have felt this keenly, it being my native State, and have taken a great interest in all that concerns its hygienic affairs. I have assisted in every way I possibly could, though not a resident, to secure legislation in regard to your State Board of Health,—relative to the local boards and the practice of medicine,—and I must confess I felt that from some cause or other you were behind. I feel now, from what I see to-day, that you are going to make amends. The necessity of a State health organization will be appreciated when it is borne in mind that to protect the health of the people, under our form of government, the municipality has a duty to perform; but the jurisdiction of the municipality is limited, and, as contagious diseases are no respecter of limits, then comes the duty of the State, and in like manner when the limits of the authority of the State are reached, then the action of the National Government is needed.

Six thousand dollars have been appropriated to the State Board of Health to carry on the work. How much can be accomplished with \$6000, I would ask, in a great State like this? The State has appropriated an insignificant sum, practically speaking, for public sanitation. If it were not for the enthusiasm, for the industry and conscientious discharge of duty of the members of the board, there would be little accomplished.

Massachusetts has appropriated money liberally. The Massachusetts State Board of Health has done better work in regard to the pollution of streams, purification and utilization of sewage, and the protection of its water-supplies, than any other organization in the civilized world.

There are only a few States in the Union now that do not have a State Board of Health. When the movement was set on foot by the American Medical Association to secure State boards of health, Georgia was one of the first to pass a law, but appropriated no money. If there had been an efficient State Board of Health with sufficient funds, Georgia would not have had the yellow-fever epidemic that it had last year. It was the first time for many years that yellow fever obtained a lodgement, and this was owing to deficient sanitary organization. The system inaugurated by the Louisiana State Board of Health, and carried out by the other Gulf and South Atlantic States, in connection with the Marine Hospital Service, practically kept the yellow fever out of the country. Georgia, however, had no State health organization, and they suffered.

I find that Pennsylvania, however, with its meagre appropriation, has done better work through its State Board of Health, as shown by its reports, than some other States favored with much larger amounts. You in this State appropriate this year hundreds of thousands of dollars to aid in the treatment of the sick and afflicted, and \$6000 for prevention! Is that the ounce of prevention and the pound of cure? , Not that I oppose your appro-

priating money to take care of the sick and afflicted ; but it is certainly your duty, and it is certainly a part of wisdom to prevent that sickness, if you can, —and it is the part of humanity, too, to do so.

I feel that the State has not properly appreciated sanitation. I trust, now, as you have effected this organization, you will steadily move forward. But, I think, you had better not ask for any more legislation, but for more money. What you want first is a thoroughly-equipped laboratory, chemical and bacteriological, and a contingent fund. You want to be in a position to assist the local boards whenever they need it, and tell them what to do. Are you in that position? Emergencies will occur when they do not have money ; time is precious, and prompt action necessary. The position that the State board ought to occupy is that of being able to assist and advise and act in concert with the local boards. Questions of jurisdiction frequently come up. In the course of my experience as president and secretary of the Illinois State Board of Health, and in other offices,—both in connection with yellow fever and other contagious diseases,—I have had to order the sheriffs of counties, on the Ohio and Mississippi Rivers, to quarantine, being also there myself ; when, if I had not done so, the whole of Southern Illinois would have been stampeded. I have also refused to quarantine when I did not think it was necessary. I did that in Cairo in 1888 ; and it required more moral courage than anything I did in my life, and subsequent events proved that it was right.

What you want is a thoroughly-equipped State Board of Health,—and you do not have it. The board must have more money than \$6000. I feel it is owing more to the fact that sufficient attention has not been called to it, and its importance understood.

I am perfectly familiar with the legislation that has occurred in every part of the United States, and I am familiar also with the amounts of money appropriated for sanitary matters, as also with the legislation regulating the practice of medicine. Pennsylvania, in that respect, while there are some features in the new law that I do not like, has gone ahead of any other State in the Union. I will tell you how : In 1887 the Illinois State Board of Health passed a resolution that, after the session of 1891-1892, they would not consider a school in good standing that did not require four years of study, and three actual courses of lectures. That was the first step taken towards forcing an increased length of time in regard to medical study. The Minnesota law was passed, providing for an examining board, and that law required that no one should be eligible until he had attended three courses of lectures. The New York law makes the same requirement. The Pennsylvania law is the last one passed, and that requires four years' study. What will be the result ? By the end of this century, and the execution of these Acts, there will probably be no medical school in the United States that will not require four annual courses of lectures. It is far-reaching. In this respect your legislation is ahead of any other State of the Union.

As I said, I think, practically, you have legislation enough ; but, my friend, Dr. Lee, the most important thing for you to do now is to see that your State Board of Health gets more money.

MR. W. W. FRANTZ, of Waynesboro : Mr. President, If it is in order, I have a resolution to offer :

Resolved, That we earnestly request the Legislative Committee to draft an amendment to the Act of May 11, 1893, which shall give to the local boards of health the control of all moneys received by them.

Mr. LIPPERT, of Phoenixville: If the gentleman will move to bring the matter properly before the Convention, I will move for its adoption.

The PRESIDENT: Let the chair suggest that the resolution go to the Committee on Legislation.

Mr. SHAW, of Norristown: It seems to me that now under the law boards of health have possession of that money; and it is for them to keep an account of that money; and that that money, instead of paying it over each month to the borough treasurer, is to be credited as cash in connection with our appropriation. We have a right to it, and have the right to use it, as I understand it.

Mr. FRANTZ: In explanation of that resolution, it opens the door very widely. It was not drafted without a purpose. The purpose is not occult. There is not any play. We may as well look at the matter seriously, and in its face. The present Act of May 11, 1893, requires that all moneys received by any board of health be turned over to the treasurer of the municipal corporation in which the board of health exists. That same municipal corporation is the creative power of the board of health; and if I understand the definition of the term "co-ordination" properly, it means evenly-balanced power; and municipal corporations, that has reference more particularly to rural districts than to cities,—a municipal corporation having, by that extended provision, the creative power. It has by that same specific provision the veto powers in refusing appropriations, which, ordinarily, are very excellent; but, unfortunately for co-ordination, there may sometimes positions occur in which the local board of health may be plaintiff, and the municipal corporation defendant; and if the plaintiff does not have its case prejudiced by the withholding of the sinews of war, there is where the knot occurs.

If local boards of health can be made self-sustaining, and exercise ordinary business prudence in the appointment of their officers, properly appointing their treasurer, I can scarcely see why they should not be entitled to use their discretionary power in the use of that money which may accrue to them through the statutory provisions. That a board of health in a borough of 5000 inhabitants can be self-sustaining is not a matter of fear. It is self-sustaining in one instance at least. If this resolution will provoke more able opinions than I can offer in any way, it has accomplished its mission.

A DELEGATE: I can see in the present state of affairs no real reason for the adoption of this resolution. Wherever, to my mind, there is found any little difference of opinion in public affairs, I believe, with judicious handling of local authorities of the borough, there need be no clashing of business interests; there need be no rivalry; there need be no division at all.

Now, I speak of experience in that line in our own borough; and we see very clearly wherein it is possible to create antagonism, wherein we might be hampered in our work. But, on the other hand, by granting to them the full rights and full privileges under the Act of Assembly, and

asking them to exercise their full rights and their full privileges in appointments, and aiming to arrive at a mutual understanding, and to have our aims and objects one of mutual interest, we have little difficulty. In many instances there may be one or two differences here and there, but that is all.

Our borough has about 8500 inhabitants, and lies just at the east end of Pittsburg. The board could not be able to sustain itself,—we would not be able to handle near the amount of money, if we were to get all that falls to us legitimately in that line, and our people to handle it through the courtesy of councils. We have not been met by any opposition in that direction; nor do I believe we will be. We have been trying to be judicious and thoughtful in what we ask. We have carefully and cautiously made up our estimates, and presented them to council. As a rule, by mutual understanding, and mutual work, we get more money than we otherwise would.

Nor do I think that the proposed plan is constitutional. That involves a broad question. If we do not want to confine ourselves to the licenses and fines and so on, that would come in in that way, we have no further power under the constitution, nor would this grant us any power to levy any separate tax and collect any separate funds. For the present, it occurs to me that we should work in harmony with councils, and take that up if they are slow and dilatory. Let us first strive to get them interested, and to see the importance of allowing us the necessary funds. I move, therefore, that the resolution be laid on the table. The motion was seconded and agreed to.

Dr. M. G. LIPPERT, of Phoenixville: Mr. President, in connection with the able discourse of the Director of the Department of Public Safety of Philadelphia, who, in concluding his remarks, so kindly assured us of his deep interest in sanitary affairs, and promised us his co-operation—at least impliedly so—in our work, I would like to ask him whether he will kindly explain a portion of the recent Act of Assembly? Inasmuch as he is an able representative of the Philadelphia Bar, will he go so far as to help us construe some portion of the Act under which the local boards were organized, and in reference to which there seems to be a wide divergence among the delegates here? I refer to that portion which states that the members shall serve without compensation, and in Section 3 of the Act that portion which says, “the secretary and the health officer shall receive such salary as may be fixed by the board, and shall hold their offices during the pleasure of the board.” Now, in Phoenixville, we understood that under this Act we could not pay the secretary of the board a salary as long as he was a member. We therefore elected a secretary who is not a member of the board, and pay him. The same with the health officer. But there are a great many delegates who take a different view,—who think that the provision that members shall serve without compensation does not apply to the secretary, even though he be a member of the board. If the gentleman can throw some light on the subject, I think many of the delegates in common with me will be under a great obligation to him.

ABRAHAM M. BEITLER, Esq., of Philadelphia. Mr. President: You recollect a celebrated member of the Bar, who emigrated to Wilmington,

and subsequently achieved notoriety, if not prominence, in that city. He was once on a train coming to Philadelphia, and a gentleman off-hand put a question of law to him, and he answered it. The gentleman followed the opinion given by this Irish barrister, and got into trouble, and afterwards charged him about it. He said, "Did you ask me for an opinion while I was reading a paper?" "Yes," was the reply. "Did I take time to consider?" "You did not." "Then I think my opinion was not worth anything; and you deserve to have got into trouble." I have not read that law, and would not be able to give an opinion to anybody which would be entitled to respect. I should like to take the matter up and read it, and give you my opinion after I have had a chance to read the Act; but I do not like to hazard my reputation as a lawyer by interpreting an Act of Assembly that I never read.

C. J. HAMNETT, M.D., of Homestead: I can, I think, give you the result of my investigations. When our board was appointed, members were here and there, and we could not get organized until August. It devolved upon me to investigate, and that point came up in my mind, and did not seem, somehow, to be common sense. I went to work and got the pamphlet law that it refers to, I believe that of 1879.

Dr. GREEN: 1889.

Dr. HAMNETT: The peculiarity of that is,—and the circular that the State board furnishes us, and the pamphlet laws of 1893 say in that way, "which reads as follows,"—whereas the peculiarity of it is that it does not read as follows. It reads distinctly, "shall elect a secretary of their" board. Now, that is not in their circular, and it is not in the pamphlet laws of 1893. If you get the pamphlet laws of that date, you will find it there as plain as the nose on a man's face, "not of their board;" and, consequently, that settles the matter.

Now, we were in such circumstances that we had to be pretty careful how we went to work. The question was, if we were not properly organized, whether we would become personally liable in any action we might take in regard to local matters; and we had quite a dispute, and I had to settle that matter in the organization of the board. In the first place, the council appointed me the president of the board. I could not accept the office in that way. I had to be elected by the board of health. Then they appointed one they thought well-suited to act as secretary; and the point came up that he could not be secretary. I had by this time to go there and lay down the law right there before them. I quoted the Act, and an additional work on this matter relative to boards of health. I forget the author's name; but it does not apply simply to Pennsylvania law. But there was an Act showing that they shall elect a secretary not of their board. Now, that cannot be any plainer than that. But the circular does not give it so, nor the pamphlet laws of 1893.

Hon. HENRY W. FISHEL, of York: I objected to making the amendment, striking out the words "not of their body," until it was very much opposed by the Philadelphia members on that ground, that the secretary could not be a member of the board of health. Then my argument was that in the country, and the boroughs of the Commonwealth, they could not pay very much salary; and they might have a party eligible to act as secretary

of the body; and they concluded to strike it out, so that they could elect a member of the board, or outside of the board. If it is published differently than that, either in the pamphlet laws or the circular that the gentleman has referred to, it is wrong.

Dr. HAMNETT: Certainly, when that "reads as follows." You refer to the Act, and there is nothing said about repealing that Act. You certainly have to read it as the original Act read. Now, whether it has been done or not, there is nothing in that Act that repeals that clause.

Mr. LIPPERT: As I understand it, the Act referred to in the new Act is an old Act applying to cities of the third and fourth classes. Now this new Act is an Act applying to boroughs; therefore the language might be slightly changed in the new Act, for the old Act could not be considered as applying to boroughs. That is my individual impression, although not a lawyer; but I would like to ask the gentleman (Mr. Fishel) what his interpretation is, as he should certainly be competent to answer my question as far as the secretary goes,—Will a person have a right to pay a secretary, if he is a member of the board?

Mr. FISHEL: In my opinion, the secretary, whether a member of the board or not, has the right to receive a salary.

Mr. LIPPERT: Why does not the Act say so?

Mr. FISHEL: If it does not say so, why can he not? He can serve as a member without salary, but need not as secretary.

Mr. BRONSON: The Act further says that the secretary and health officer shall take the oath prescribed for members of the board. Why are they designated to take the oath prescribed for members of the board, if they can be members of the board? Why are they separated?

Mr. FISHEL: If the secretary is not a member of the board, he certainly would have to take an oath separate from them. But if the secretary, being a member of the board, takes an oath, he would not have to take another, because the oath is the same.

Mr. J. A. McLAUGHLIN, of Allegheny: Mr. President, I have been impressed for some time with the importance of changes in the legislation regulating health affairs. It occurred to me yesterday that a legislative committee should be appointed by this Convention. It seems to me that the legislative committee that I thought would be appointed has been swallowed up in a committee on permanent organization. Whether they are to perform both duties or not, I do not know.

Vice-President VEALE: No, sir; they will be separate committees after this,—or as soon as the chair appoints the committees.

Mr. J. A. McLAUGHLIN, of Allegheny: To that committee should be referred all matters that occur to the members of this Convention that require amending or changing in the Acts of Assembly. There is one through which there has been a great deal of confusion and annoyance, as appears from the discussion here to-day, on account of that legislation. We are acting under an Act special to Allegheny; one that is little known, or little attention paid to, under sanitary affairs. Of course, we find that the Act is not what we want. The Acts of Assembly that have been passed since for boroughs cannot be applied to us. We cannot frame ordinances under any other Act except that passed for Allegheny; and we must get our authority

from the city councils. We have got one ordinance through. We should have another. There are various reasons for it. But we have butchers and other people in councils who are not pleased with the ordinance presented; and a simple motion referring to it carries it over. I agree fully myself with Mr. Gray's paper, that uniformity should exist from one part of the State to the other, so that any rule or regulation may cover every homestead, and from one part of the State to the other you will meet with the same health laws. They, then, would not have to be educated again. We have heard a great deal about educating people in health matters; and I urge uniformity throughout the State. We cannot do anything, unless we have that. For that reason I think that the Committee on Legislation should prepare a law for the State, so that it would be the same from one end of it to the other. I was afraid that the Committee on Legislation had been lost in the shuffle, and for that reason I rose to make a few remarks.

Mr. LIPPERT: I should like to state for the Committee on Legislation and Organization that, although the original intention may have been to refer the questions of legislation to this committee to report to-day, that we found our time was so short, and it would have required so much work for which we were not prepared at this time, that we preferred to embody the permanent Committee on Legislation in the by-laws, and resign our duties on legislation to that committee.

The PRESIDENT: I was just about to announce these committees. I find that there are so many capable and intelligent members of the convention, that there are hardly enough committees to embrace them all.

GEORGE G. GROFF, M.D., of Lewisburg: If in order, I would like to offer a resolution: *Resolved*, That it is the sense of this Convention that all boards of health in this Commonwealth should do all in their power to prevent the pollution of the inland waters of the State.

I would like to say one word on this resolution, especially in reference to the work that may be done by members of the boards in the smaller towns and boroughs. I know that streams are the natural courses of sewage and refuse from communities; but I believe it is one of the crimes of the age, this universal pollution of drinking water. In every village in this Commonwealth, and in large towns, it is almost impossible to get drinking well- or spring-water without danger of contagion from disease. This partly from dead horses and dead cows, as well as dead dogs. As soon as they die, they go into the streams almost universally. And the private wells are contaminated in all parts of the Commonwealth. What I ask is that the maintenance of a pure water-supply should be begun at this point.

Dr. DUDLEY: In reference to that matter, permit me to call attention to the very high-sounding phrase that is being used by our friends on this subject. We hear that streams are the natural carriers of sewage. It is no such thing, and it is not true. They are the artificial carriers. Nature never intended that a man should walk into a stream, and there deposit the contents of his rectum. It is an artificial thing altogether. Neither is it natural for carcasses of animals to find their way into streams, unless they are thrown there by men. Let us get away from that idea. It is misleading, and doing harm.

A. M. BEITLER, Esq., of Philadelphia: Perhaps it will be apparent to

every delegate here why every Philadelphian should be heartily in favor of this resolution. I want to second what Dr. Groff and Dr. Dudley have said. The streams of the land are not for the purpose of enabling the living to dispose of their dead. From time immemorial, when not burned by fire, the soil or the earth has been considered the proper place of interment of carcasses, and it is only at this late day that we have seen carcasses in the flowing streams. No man need go outside of the records of our own State, or further back than the decision of Judge Thayer, to find a magnificent definition of the common law of this State for the prevention of such pollutions. When the stream rises and comes down the mountain-side and reaches the valley and flows on into the river and thence into the sea, it has a right, as far as man is concerned, to go on as nature designed it should go, taking with it the natural drainage; and any man in this Commonwealth who pollutes that stream, does that which is unlawful, and not what nature intended should be done. Looking at it in this line, the boards of health should teach, and the people should aid and assist them, until all our streams are safer and cleaner, and freer of destructive matter, and that men should always get rid of carcasses otherwise than by throwing them into nature's pure water; that the only way to do is by burying sufficiently far from the banks of the stream, or by burning, so it cannot pollute anything. This is a thing that ought to be, everything, whether it amounts or not to the pollution of a stream. None of us can tell how soon the lesson may come home to us; and no man, whether his residence be in Philadelphia or elsewhere, knows how soon he may become a resident of any other section or locality; no man knows how soon his domestic life may be changed to down the stream, and he become the recipient of that pollution which he may have thrown to others.

But aside of the selfish considerations, there is a broader consideration, that he knows who has knowledge of any law or morals, that contamination of water that nature furnishes is morally wrong, as we must drink it to live.

Mr. MURPHY: Will the gentleman kindly go on for about a minute, and tell us about the decision in the coal case.

Mr. BEITLER: I think Mr. Murphy is better able to state that decision than I am.

Mr. MURPHY: If Mr. Beitler cannot inform us as an attorney, I cannot as a layman. But I understood that the Supreme Court had decided that the great interests of Pennsylvania could not be interfered with to protect private rights in any other portion of the Commonwealth. The pollution of a stream is that which deprives riparian owners below of their rights in the stream; and it is a contamination by means of drainage of coal in the vicinity of the mines, which has got to be very general, as is evidenced here to-day.

Mr. BEITLER: The Supreme Court first decided that they could not put anything deleterious in a stream, and subsequently it reversed that decision.

Mr. WARD, of Butler: Mr. President, I would like to make inquiry, whether there is a digest being compiled for the use of the boards of health, of the several laws and the Supreme Court decisions? I understood so; but, if it is not the case, I would like to know whether any measures are being introduced by which such a digest could be compiled? The school laws

have been compiled so that it is easy for a school board to reach a decision on almost anything that may come before them. But such is not the case with us. One difficulty is that we have an association called a "Bar Association," and it is almost impossible to get an opinion out of any of its members for fear of interference by the Bar Association and a fine of from \$5 to \$50, it makes no difference whether the opinion is worth \$500 or 5 cents.

H. H. WHITCOMB, M.D., of Norristown: Mr. President, I think the last report of the State Board of Health is a very valuable report, and should be in the hands of every member of this Convention, as it contains a digest possibly of what the gentleman wishes, of the laws of the Commonwealth, together with a great many decisions of the Supreme Court and other courts in reference to the matter. I think when the address of Major Veale is published, if it would be possible to put it in the hands of the members of this Convention, it also would be a great help.

On the question of issuing burial permits, there are undertakers in this Commonwealth who insist, as we all know, that we put them to a great deal of trouble. I had been a health officer of our borough until this law was passed or I became president of the borough, and know some of the delays of the law in regard to burial permits. When we wish a permit giving the transfer of a body from the borough of Norristown, it seems to me that the body ought to be carried to Philadelphia without the permit having to go through Major Veale's office; and if it goes anywhere else, it should be the same; and that if one comes from another place, as from Philadelphia, that it should be allowed transfer to the cemetery without a new permit by us. This now causes more or less inconvenience and delay to the undertaker and the family. It seems to me some plan could be adopted to save expense and delay. The expense is in this: A person dies in Norristown, and the friends want the remains buried in Philadelphia. The undertaker comes and gets his permit. He takes it to the office in Philadelphia. Before the grave can be opened in Philadelphia he has to get a new permit from that board, which is, it seems to me, an unnecessary expense. There is the extra cost of travel going back for this special permit, and then the trouble; whereas if that permit was good, by sending it to the cemetery to have the grave opened, it would cost very much less. You can see the inconvenience that this gives rise to. Before this law was passed, it seemed a great necessity, as we did not desire to have remains brought into our community.

Now, then, since every borough has a board under this law, and permits are issued under it, a health officer ought not to be required to issue a permit at both points, unless a body is unfit or the transfer unusually troublesome.

Then coming from a distance without freight insurance to the party it was to come to, while that has never caused me any special inconvenience, yet the undertakers of our place have called my attention to it, and it prevails elsewhere.

JESSE C. GREEN, M.D., of West Chester: Mr. President, business is a very important matter. I desire to announce to those who are here that, as your treasurer, it is important that money should be collected. We cannot carry on this work without it. I thought it would be wise just to say before we part that each delegate coming from various parts of the State carry

home the decision of this Convention that \$5 should be sent to the treasurer on or before March 1, in order to assist in carrying on the work of this body. I think if this is carried to each board by the members here, it might save some trouble hereafter. I know there are no treasuries of the various local boards. But I think it proper that the intelligent men I see here produce the impression on each board that money is absolutely necessary. It is an important aid in all organizations; we cannot get along without it.

A DELEGATE: I would like to suggest to the treasurer that it might be well for him, after he goes home, to send to each borough board a printed envelope with his address on it, and in it the necessary notice calling for the amount. I do not suppose there are very many here who know where the treasurer resides, or where to address him. That would be a suggestion to the boards that there were \$5 needed.

Dr. GREEN: That will be attended with some expense. How many organizations are there?

The PRESIDENT: There are about 400 Board organizations and about 747 boroughs.

Dr. DUDLEY: There has been a discussion in reference to the status of the secretaries of the local boards, and a little difficulty as to the interpretation of the law upon the subject. I move, therefore, that we request the secretary of the State board to procure from the attorney-general an authoritative opinion as to the status of the secretaries of the local boards, and to give the information to all the boards of the State. The motion was seconded by Dr. Hamnett, of Homestead.

A DELEGATE: I would amend the motion by adding "and health officers."

Dr. DUDLEY: I accept that.

A DELEGATE: I do not know that that is necessary, because I notice in one of the circulars that you can elect a member as secretary of the board, and he would be entitled to a salary as secretary. I take it that is authoritative.

Dr. DUDLEY: So long as there is any doubt on the subject, we had better try to settle the doubt.

Dr. LEE: My attention has been called very frequently, previous to this Convention as well as since its meeting, to this point. It has been said that the present law, as published by the State Board of Health and circulated in the Convention, was an incorrect copy of the law as it was passed by the Legislature. That is incorrect. The law, as the Board of Health publishes, is as it passed the Legislature. The first section of the law simply states that it is essentially the law of 1889 providing for cities of the third class. Now that law of 1889 does contain a provision that the secretary of the board shall not be a member of the board. That was omitted in the law for the establishment of the boards of health in boroughs; and my belief is that the legislative committee which had the matter in charge made that omission purposely. It was undoubtedly considered that it would very often be difficult in boroughs to obtain a sufficient number of citizens who would be willing to serve to establish a board of health of five members, and also to have a secretary and health officer distinct from the board. Those restrictions were therefore omitted in that law, and I think wisely. The circular

of the State Board of Health, which has been referred to, states that either the health officer or the secretary may be a member of the board. But it is the opinion of the board that it is eminently desirable that the health officer should not be a member. It is believed that he would be a more efficient officer in every respect, and that he should have the whole control of the position, so far as his duties go, if he is not a member of the board. But so far as I understand the law, there is no clause which makes it absolutely necessary that even he shall not be a member of the board. I do not conceive that it is necessary to refer this matter to the attorney-general.

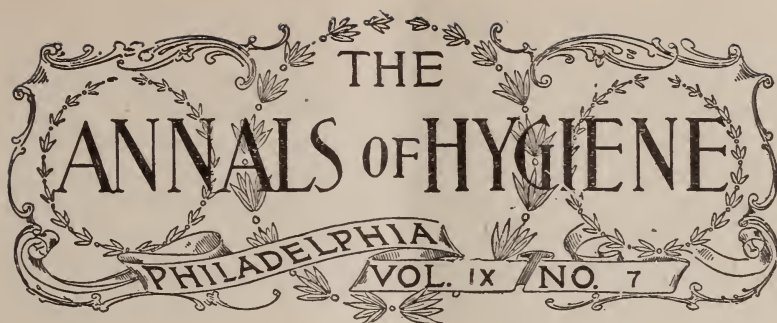
I may state, Mr. President, that your attorney-general is not only a most astute lawyer and admirable adviser to your Excellency, but that he is also one of the most cautious advisers that I have ever met, and that he is not willing to give any more opinions on these subjects than is absolutely necessary. In almost every case that I refer to him, he says, "Refer that matter to the borough solicitor. It is not a question that either you or I are called upon to decide." I do not feel, therefore, that it would be wise to refer this question to the honorable gentleman.

MR. WAGONER, of Mechanicsburg: I think the gentleman who has just taken his seat has taken the right side of this question. If any gentleman who sits as a member of this Sanitary Convention will take up that law as published by the State Board of Health, and read it,—and I believe it is a copy of the law of 1893,—they will find that every section of the law is positively mandatory, with the exception of one, and that is the second clause of Section 1 of the Act in regard to the appointment and the distribution of the several members of the boards of health in the several parts of the borough, where it gives them the option, and says they "may." But in every other instance it uses the mandatory verb "shall," just as explicitly, in my judgment, as it possibly can be. If I mistake not, we understand the law to be, first, a rule of action; that there are two kinds of law: One is common law, which is the practice of time immemorial; the other is statutory law, or the enactment by the regular constituted legislative bodies of a Commonwealth, by such means as explain the common law.

Now, just so long as the secretary of the board of health is a member of that board of health, and does not come in conflict with the constitution as adopted in 1873, in the incompatibility of office, so long can he hold his position and receive his salary in that board. I will venture my reputation on this floor to-day that there is not an attorney or a judge in the Commonwealth that will decide differently. I think it is a very plain question.

THE PRESIDENT: I would suggest before adjournment that these questions are very proper, and ought to be submitted in writing to the secretary of the general association, and by him referred to the Legislative Committee, or the Executive Committee, so that they can give what information is desired to the members communicating with them.

The Convention then, at 1.30 o'clock P.M., adjourned.



COMMUNICATIONS.

School Hygiene.¹

I. SELECTION OF A SITE FOR A SCHOOL.

FOR a school-house, it is desirable to secure the healthiest possible site in the district where the school is to be located. Pure air and sunlight in abundance are to be sought, while foul air and dampness are to be avoided. In the country, a damp soil and the region of wet-weather ponds are always to be avoided. A hill-side, because it is drier and warmer, is better than a hollow, or than the top of a hill, if the latter is exposed to bleak and cold winds. In towns it is not necessary to locate the school-house on a principal street; a quiet side street is preferable. It should be located away from offensive industries, as gas works, tanneries, oil refineries, etc., while the school lot should be so large that two sides have the adjacent buildings at least sixty feet distant, and, in both town and country, a play-ground as large as possible should be secured. This should be on the south and west sides of the school buildings, rather than on the north.

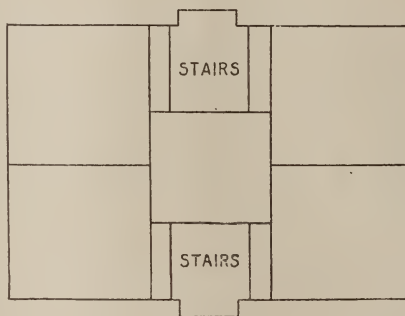
The school grounds may be planted with trees, but these *should not overshadow the buildings*, thus producing dampness, nor should they be permitted to darken the windows. In the country, in exposed situations, wind-breaks of evergreen trees may be planted on the north or northwest side of the building, and in some localities on the southeast, to protect from the cold winds coming from those directions. To secure a large lot it would, in

¹ Addressed to School Directors, Controllers, and Trustees. Issued by the State Board of Health of Pennsylvania.

towns, be well to go to the suburbs rather than to build in the seemingly most convenient spot. In rural districts, children frequently walk one, two, and even more miles to school, and it would seem that in towns and cities, where there are well-kept side-walks, children could do as much when necessary. It is a matter of surpassing importance that there be a considerable area of open ground about every school-house, and great exertion should be made to secure it.

II. PLANS FOR A SCHOOL BUILDING.

No committee should erect a new school building without the most careful consideration and study of improved school-house plans. A cellar should be made under the whole building, and



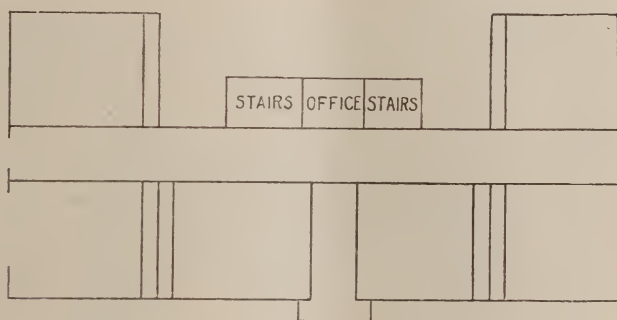
NO. 1.—Plan of school building to give maximum of light in each room. (From Lincoln's Sanitary Conditions of School-Houses.)

should be at least half above ground, with good large windows and a cemented floor. It could then be used for a play-room in wet weather. If there is no cellar, there should at least be an air-space under the building for ventilation.

To secure dry walls, they should be underdrained, and a damp-proof course of slate should be laid under the first set of joists. The building should not be over two stories high, and should secure to each pupil 300 cubic feet of air-space with 15 square feet of floor-space. The walls within should be "furred out,"—that is, have the plastering put on lath, not directly on the walls. This makes the building drier and warmer. The rooms should not be in the form of squares, but of parallelograms, and not over 40 feet by 24 feet in area, this being the greatest dis-

tance rooms that can be well lighted and pupils see across to blackboards, etc. Ceilings should be about 13 to 14 feet high, not more. The walls should be whitewashed or painted, never papered. Buildings should be so faced that the sun can enter every room. All exterior decorations which cut off the light are to be avoided. The floors should be of hard wood, oiled and free from splinters. The cloak-rooms should have good means of ventilation, and should be lighted.

Staircases should be fire-proof, with rails on each side, without any winding; every tread being full size. There should be a staircase for every fifty pupils. Doors should open outward, and should be of good width. For country schools, and for all schools



NO. 2.—Plan of school building; an improvement of No. 1.
(From Lincoln.)

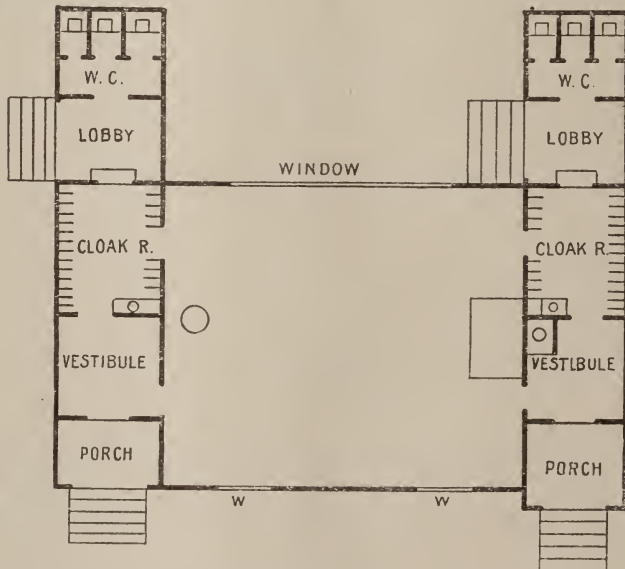
on large lots, it is probably best to face the building to the east or west. This will bring the windows to the north and south, which, generally, will give the best results in lighting the room.

HEATING.

A proper degree of warmth and pure air are absolutely essential in all school-rooms. The effort should always be made to secure ventilation in connection with the heating of a building, as this is the best and least expensive method.

Steam heat is the most convenient and most cleanly, but generally there is no ventilation accompanying it. If so, it is to be rejected. Except in large towns or cities, heating must be done by stoves or by heaters placed in the cellar. Good results may be obtained from either.

From 68° to 70° F. is about the proper temperature for a school, and this should be determined by a thermometer, which every school-room should possess. This should be hung about three feet from the floor and in a portion of the room where an average temperature will be indicated. The stove or furnace should be large enough to heat without being made "red hot." Ventilating shafts, in order to be efficient, *must be heated*; they should be not less than eight inches square on the inside, and made smooth, preferably of metal. A card of instructions to teachers and janitors in reference to heating and ventilation should hang in each school-room. For drying the children's feet, a large flat piece of iron, resting directly upon a steam coil placed in the halls, is excellent.



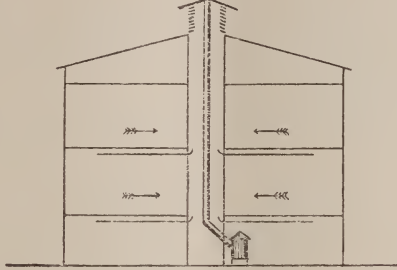
Plan for a single-roomed school. (Gardner.)

CARD OF INSTRUCTIONS FOR JANITORS AND TEACHERS.

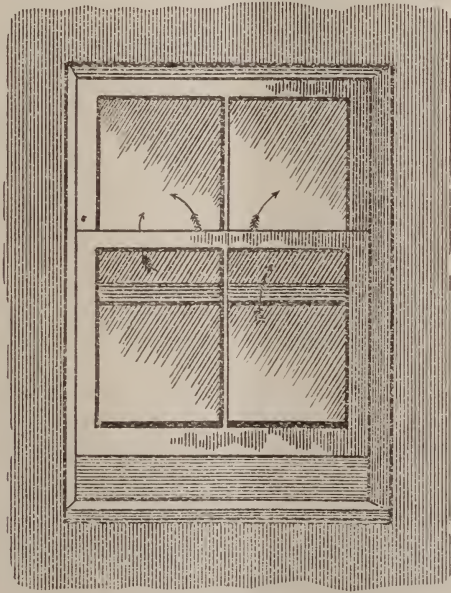
It is thought that a card with a few plain rules on lighting, heating, ventilating, etc., hung in each school-room for the use of teachers and janitors, would do good service. The following rules are suggested :

(1) Windows should not be obstructed with flowers, clothing, or curtains. If the curtains are hung at the top of the windows, see that they are rolled up tight on dark days.

(2) The thermometer should be hung remote from the heater or stove, and three to five feet from the floor. The room should be kept at a temperature of about 68° to 70° F.



(3) The air in all rooms should be kept pure and free from odors. But no pupil should be compelled to sit in a draught made by lowering any window or from open door. All school-



Showing manner of ventilating by inserting strip of wood beneath lower sash of window.

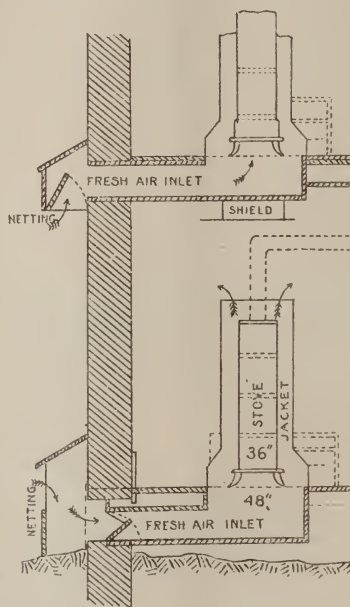
rooms should have the air in them completely changed each noon hour and in the evening after the school is dismissed.

(4) All rooms should be kept free from dust. All closets

should be kept clean. The black-boards should be free from grease. The water-closets should be clean at all times. The cellar should be clean. There should be no filth on the school ground at any time.

(5) Children suffering from contagious diseases, or coming from families in which such diseases exist, should be reported to the proper authorities at once.

(6) Any violation of these rules should be at once reported.



VENTILATING.

A simple plan of ventilation, by means of one central shaft, is given in the cut. About 2000 feet of fresh air per hour to each pupil are needed.

An open fireplace, with a small fire burning in it, is the best means of ventilating a room yet devised. *A ventilating flue, in order to act, must be warm*, otherwise it will probably only be a funnel down which cold air will pour into the room. Windows should not be lowered in cold weather when a draught of cold air may fall upon the head of any pupil. Much fresh air may be introduced into a room by placing boards or strips of muslin about six inches wide under the lower sash of each window in the room.

A space will be formed between the two sashes through which a stream of air will enter the room.

Another plan is to have a cylinder of zinc enclosing the stove. A hole is made in the floor underneath the stove, and from this hole a piece of stovepipe leads to the external air. The air about the stove will become heated and will rise, while to take its place a constant stream of air will pour into the space about the stove from out-doors. This air will be warmed before it passes into the room. It will be well for the teacher to have *fixed times on the daily programme at which* to throw open doors and windows several times each day, that all the stagnant air may be removed from the room. At these times all the children should be on their feet exercising, and the windows should be closed some minutes before the children take their seats, in cold weather. All windows should be made so that they can be lowered. This especially applies to one-roomed country schools. Foul air produces listlessness in schools perhaps more than any other one cause.

Foul air poisons the blood and dulls the operations of the brain ; hence, good work cannot possibly be done in an ill-ventilated school-room. The teacher will become impatient and petulant, the children dull and listless. Hence it is clear that *much attention* should be given to securing pure air in all school-rooms.

(TO BE CONTINUED.)

Prohibiting Kissing.

According to the daily press, the Orange (N. J.) Board of Health had recently under discussion the question of the prohibition of kissing as a sanitary measure. Whether the discussion was serious or not, we do not know. Of course, such a measure would never be seriously received or considered by the public ; but it is a very serious question. There can be no question of doubt that much disease is transmitted from one to another in the act of kissing, and while a serious attempt at prohibition would be foolish, to say the least, it is the duty of every intelligent person to discountenance the habit of kissing among strangers. The poor baby, so much subjected to this form of endearment, is, in truth, more frequently "*kissed to death*" than the public has any idea of.

The Physician as a Sanitarian.

BY C. O. PROBST, M.D.,

Secretary of the State Board of Health of Ohio.



AS a sanitarian the physician is not a modern personage. The great physicians of all ages have preached that it is more blessed to prevent than to cure. And the Father of medicine laid down the principles on which modern sanitary science rests,—pure air, pure water, and a clean soil. Modern cupidity—or rather modern invention (for I prefer to believe that the race is growing better as well as wiser)—has made it necessary to add to this sanitary trinity—pure food.

To the physicians of Ohio its State board of health is due; and to the State board of health—composed mainly of physicians—may be credited the organization of over 1600 local boards of health. Nearly 2000 Ohio physicians, in connection with these organizations, are now engaged in active sanitary work. Most of them are giving their time and knowledge freely to the State without even the compensation of protection against the charlatans and quacks.

But we need not go to official circles to find the physician as a sanitarian. In every city, village, and hamlet the good physician may be found guarding the home against sickness and death. When pestilence comes, and when friends and even relatives have fled, he it is who cares for the sick, buries the dead, and guards the public against infection from the fleeing. In every part of the civilized world the leaders in the great battle against preventable diseases are physicians. No profession or occupation can be pointed out whose members so universally sacrifice self-interest to the public weal,—for every case of sickness prevented robs some physician of a prospective fee.

I note that one of our eastern law schools proposes to establish a law clinic where the poor may receive gratis legal advice as to their rights and privileges, which may have been invaded,—an admirable arrangement for the law student, and possibly of real service to the worthy poor. But is it supposable that our lawyers will ever be found banded together for the express purpose of instructing prospective clients how to avoid legal entanglements, by which they would be benefited?

Lawyers as sanitarians are practically unknown; and yet their services would be of almost equal value with those of physicians, for many of the sanitary problems to be solved are of a purely legal character.

There is every reason, too, why our clergymen should be sanitarians; but, with the exception of the Sanitary Association of English Clergymen, I am not aware that, as a class, they have allied themselves to this great movement,—the protection of the public health.

The American Public Health Association, organized some years ago to advance public health interests, invited its membership from every class and walk of life. As an actual fact, nine-tenths of its members, and practically all of its active workers, have been physicians.

We may expect, therefore, that the sanitarian of the future, as of the past, will be a physician. And our medical colleges and universities should see to it that he is fitted for this high calling.

Are our medical colleges doing their full duty in this matter? I very much fear that in many of our institutions the chair of Hygiene is, in fact, but a poor, one-legged kitchen-stool, added to the furniture of the college only because of the demands of the Medical Licensing Boards of Illinois, and a few other States.

Let me quote what one of America's greatest surgeons, Dr. Samuel D. Gross, said with reference to the relative importance of hygiene as a part of medical education. He said, speaking on a similar occasion, "The great question of the day is not this operation or that, not ovariectomy or lithotomy or a hip-joint operation, which has reflected so much glory upon American medicine, but preventive medicine, the hygiene of our persons, our dwellings, our streets, in a word, our surroundings, whatever and wherever they may be, whether in city, town, hamlet, or country. This is the great problem of the day; the question which you, as representatives of the rising generation of physicians, should urge in season and out of season, upon your fellow-citizens,—the question which, above all others, should engage your most serious thoughts and elicit your most earnest co-operation."

England, where, perhaps, more advancement has been made in sanitation than in any other country, requires her medical officers of health to qualify for the responsible duties of their

position, and her universities, meeting the demand, have added Doctor of Hygiene to their degrees.

May we not ask that our medical colleges shall place hygiene on a level with other branches of medical instruction, and that their graduates shall be examined as to their knowledge of this subject?

The sad lack of sanitary training, displayed by many members of the profession, is daily brought to our attention, but the following instance, with editorial comment, clipped from a medical journal, will, perhaps, cap the climax:

"A town in Ohio is at present suffering from an epidemic of diphtheria, but the town has a board of health that is fully awake to its responsibilities as a prophylactic power, and it addresses a circular letter of instructions to the citizens, from which we take the following: 'Second, we recommend that every child wear next its person, and suspended by tape from the neck, a little sack made of open materials, containing equal portions of gum-camphor, gum-assafoetida, and carbonate of ammonia. Also, that onions be freely used as an article of diet, and the children be required to partake freely thereof, at least once a day. That a small portion of flour of sulphur be given every third evening upon retiring; and that on the first symptoms of sore throat a physician be called.' " Probably the intention of these measures is to make each child so aromatically offensive that no disease-germ of any sensibility whatever can be tempted to take up its habitation in such a malodorous locality. With this end in view, the precautions are well taken: assafoetida and ammonia can certainly guard the cutaneous surface, the fumes arising from a daily use of onions will effectually bar admission by the air-passages, and any enterprising germ which attempts to gain a foothold in the citadel by the rear entrance will encounter the stifling effects of a sulphur diet, and wish he hadn't tried it. The sensible suggestion which closes the above quotation redeems it from utter absurdity.

Yet these instructions were founded on the advice of a physician.

As the highest type of civilization is said to have been reached by that people which show the greatest regard for sanitation, so it may be said that the highest type of physician has been reached in the "Physician as a Sanitarian."

Our Rich Men.¹

BY THE LATE DIO LEWIS, M.D.

BUT how can we bear an existence which, measured by Vanderbilt's, is a pitiful failure? Are you sure, my friend, that his life is a magnificent success? If a man were happy in proportion to his possessions, which is really the popular notion, then, indeed, money would be the great good. Here is a gardener worth \$100. He sings while about his work, enjoys and digests his dinner, watches his children as they play among the flowers, and seems contented. Suppose Mr. Vanderbilt, with his \$200,000,000, were as happy in proportion to his wealth? He would climb to the top of Trinity steeple, face Wall Street, shriek his tumultuous emotions, and, in the madness of his joy, leap into eternity.

May there not be some mistake about the power of a large fortune to make a man happy? May it not be true that carrying \$200,000,000, or even \$5,000,000, for board and clothes is doing a great deal of hard work for very little pay?

If a man's eating could keep pace with his wealth, if Mr. Vanderbilt could swallow a cord of tenderloin and a ton of slap-jacks for breakfast, and a gross of turkeys and an ocean of champagne for dinner, then his great wealth would amount to something; but he does not enjoy his rich dinner half as much as one of his humblest working-men enjoys a crust.

Mr. Vanderbilt probably consumes with indifference four inches of sausage, followed by heartburn and a balloon full of gas, while his poorest railroad-digger surrounds, with eager joy, sixteen inches of sausage, and secretly wishes sausage were cheaper. The digger eats four times the length, and enjoys it ten times as much. Multiply four by ten and you have forty. The poor digger is forty times as well off at the table as the richest man in the world.

When Mr. Gould reaches home, and his rubber has spent an hour in trying to rub life into him, he goes to the table. Just as he begins to pick a little and sip a little, all at once the skeleton

¹ This abstract of a paper, written in 1883, is so good that we deem it well worthy of reproduction.

of some wretched stock speculation darts before him, and even that little appetite is gone. And yet his gardener, who enjoys with keenest relish every mouthful of plain food, mourns that he cannot take Mr. Gould's place; not to secure food, for he has enough of that; not to secure clothing and bed, for he has these; but to be envied by his neighbors, and, sweeter than all else, to have the street point at him with the exclamation, "That's him! That's him!" If this silly gardener knows what he is wishing for, and still goes on wishing, he is a fit subject for the insane asylum.

If Mr. Astor could wear 1000 coats at once, with as many breeches, a pyramid of hats reaching the sky, and unnumbered boots; if he could be accompanied by a procession of express wagons crammed and fluttering with richest handkerchiefs, loaded with choicest perfumes; if he could wear shirt collars of finest Irish linen, so wide that they would turn over and drag on the very ground, or if he could wear golden garments, covered with diamonds, then his great fortune would signify. But, Mr. Astor probably wears but one suit of clothes at a time. He may indulge in silk underwear, but it is not as good as the working-man's flannel; he may wear fine boots, but the skin was probably taken from the back of an untitled calf, and, if examined, would be found very like that worn by the janitor of one of his 1200 houses.

If Mr. Mackay could get out of one regal bed and into another more regal every thirty seconds all night long, his enormous wealth would tell. But he occupies a single bed, after the poor man's fashion, and his snoring is, probably, quite as barbarous as it was when he was working in the mines at four dollars a day. I have watched the faces of rich men when they were entering church on a pleasant Sabbath morning, and again as they left, and have thought that unless these people are consummate actors, assuming the expression of discontent and dissatisfaction which they wear, they are not happy people.

I have known a great many working-men, such as carpenters and blacksmiths. They are generally interested in their little homes; are well acquainted with their wives, watch, with loving interest, the progress of their little ones, are free from vexing cares; enjoy good health, and, unless they also are consummate actors and hypocrites, they are fivefold happier, and, therefore, fivefold better off than the rich. You will ask me, "But would

you not like \$10,000,000 yourself?" If I would, unless for some philanthropic use, it proves only that I am as silly as some other people.

Suppose a rich man were to show you in his large warehouse a million pair of boots, all fitted to himself, and should pause to hear your congratulations. You should ask him of what possible use that vast collection could be to him. He would probably say that a man can't have too many boots, and that the extra ones are for a rainy day. You would politely keep silence, but go away thinking him a fool. What essential difference is there between this man and that other one, who keeps laid away 1000 times as many dollars as he can use.

We all seek happiness, but give \$1,000,000 to each of the first ten men you meet in the street, and the chances are ninety-nine in a hundred that not only will you fail to make them happier, in the long run, but they will fail to make others happier.

Happiness comes of health and the harmonious play of our faculties. It comes almost entirely from within, in very small degree from without.

The Funeral Director as a Factor in the Prevention of Disease.¹

BY LAWRENCE F. FLICK, M.D.,
Philadelphia.



AMONG the oldest callings in life is that of the undertaker or, as it is now called, the funeral director. So quietly and so modestly have the men who have followed this calling in the past performed their work that history stands mute in their regard, and even tradition is silent, except when she can illustrate a joke at their expense. And yet we know from the very nature of things that one of the first duties which man must have sought to perform by proxy was that of disposing of his dead. During life nature ties us to our friends and kinsfolk by the bonds of love and sympathy and by the attractions of human magnetism, so that the personal duties

¹ Abstract of a paper read before the State Funeral Directors' Association of Pennsylvania.

which we perform for one another are pleasant and easy ; but after death nature places a barrier between us and those that have gone,—the bonds of love and sympathy are broken ; what was an object of affection becomes an object of horror ; what was sweet to look upon and attractive as a loadstar becomes repulsive and repellent, and our duties to the departed are performed under the lash of education and conscience. How natural, therefore, to seek a substitute to pay the last rites to the dead, and who can doubt that the practice began on the very first day that death stalked upon the face of the earth. The calling of undertaker is therefore probably as ancient as death itself, and though history records, nothing about it we may justly assume that whenever and wherever in this vale of tears there have been hearts wrung with sorrow and brains wrecked by grief at the snapping of cords which had tied human hearts together there was the deft hand and quiet, unobtrusive form of one qualified by nature and by training to minister to the dead and to comfort the living.

Modern science advances the calling of funeral director to the importance and dignity of a profession, and imposes upon its followers new qualifications and new responsibilities with the new honors. The human family has at all times, whatever its condition of civilization, given some evidence, by its methods of disposal of the dead, of intuitive knowledge that the dead are a source of danger to the living. In the past, however, this danger has always been believed to be due to the decomposition of the dead body. So long as human knowledge failed to penetrate the effect in search of the cause and man felt happy in the belief that he could escape all danger by disposing of the inanimate remains of his dead before nature began to resolve them into their elements, the old-time qualifications and methods of the funeral director were all that could be desired. But human knowledge has advanced and we have passed the threshold of intuition. We now know that danger from the dead lies not in nature's chemistry, but in living organisms which had brought the human life to an end, and which still infect their victim.

It is our new knowledge of the organic world, and the consequent new warfare which is being inaugurated against the microscopic foes of man, that will elevate the calling of funeral director to one of the most important positions in life. It will no longer be business qualifications, suave manners, punctiliousness, and artistic taste that will alone be allowed to determine a man's

right to follow this avocation, but in addition thereto there will have to be proficient knowledge of and skill in sanitary science, high moral principles, unassailable honesty, and invulnerable conscientiousness in the performance of duty. It will no longer be so much a question of masking the hideous face of death as of cultivating the propitious conditions of life. The funeral director of the future will have to be well informed about disease, the organisms which produce disease, the life-history of such organisms, the most ready method by which they can be destroyed or prevented from invading the healthy; he will have to be a man of such sterling honesty as to be able to withstand the social, political, and sentimental influences which will constantly be brought to bear upon him to swerve him from his duty; he will have to be so conscientious that he will perform his full duty in the slightest detail, even when such performance is not seen by others, and when he cannot be held amenable for non-performance. Funeral directors so equipped by education and possessing these moral and intellectual qualities will contribute much to the welfare and happiness of the human family, and will well merit the rank of professional men. They will be generals in the warfare against disease, and will have opportunities of leading larger forces against it than any other class of men, not even excepting physicians. The grief-stricken relatives of the inanimate mass that has succumbed to the invading organisms, with judgment paralyzed and bodies predisposed to infection by long vigils and deep sorrow, the solicitous friends who in sympathy and sorrow rush in to express condolence and pay their last tribute of respect to the dead, the neighbors, the thousands who go to funerals partly from curiosity and partly from a spirit of mercy, the livery-men, the florists, and various others who are employed in one capacity or another about the dead or at the funeral, these all will have to be under the direction of the funeral director in the struggle against disease. As a scientific, well-equipped agent of preventive medicine he will moreover be able to stand between disease and the thousands upon thousands who use carriages which have just returned from funerals; he will be able to quietly advise against and thereby stop many little customs which have sprung up under the tutelage of neighborliness, charity, and benevolence, such as distributing flowers that have been used about the dead, giving away toys, clothing, furniture, etc., that have been used by the sick or have been in the sick-room, distributing

mementos, etc., all of which are most effective ways of spreading disease. He will be able to give information and advice about the relative merits of germicides, the easiest and most effective methods of disinfection, and the extent to which disinfection will have to be carried in a given case.

But how will the funeral director obtain the necessary knowledge and skill for his profession, and how will the calling be confined to those who have the necessary moral and intellectual qualifications? It is the history of the world that knowledge comes to a few first, and to the many afterwards. Already there are men in the calling of funeral director who have anticipated the dictum of science, and, recognizing the dignity and importance of their profession, have equipped themselves with every possible qualification for their high calling, and are working industriously and disinterestedly with their brethren towards the same end. The organization which I have the honor to address this evening is an evidence of this, and I understand that there are similar organizations in many parts of the United States. It is the few who have outstripped their brethren, and who are in the vanguard of their calling, who will have to solve the problem, and I have no doubt they will solve it through this and similar organizations. Two things will have to be accomplished: First, the young men who will seek admission into the profession in the future will have to be given an opportunity to acquire the necessary knowledge and skill; and, second, there will have to be machinery created by which the moral and intellectual qualifications, and the proficiency in knowledge and skill of a candidate for admission into the profession can be determined. These results can probably best be attained, as they are attained in other professions, by the establishment of educational institutions for the purpose, or the organization of departments in institutions already existing; and by the enactment of a law making the possession of a license or diploma a condition upon which the profession can be practised.

The legal requirement of certain knowledge and skill as a condition upon which a profession can be followed of course carries with it the necessity of providing the facilities for the attainment of that knowledge and skill. Such facilities might assume the form of a special college for the purpose, a separate department in an educational institution already in existence, or a course of lectures under the auspices of an organization such as I have the

honor to address to-night. Educational institutions cannot be established at once, and especially where their objects contemplate an entirely new departure. This Society is itself an embryo college for the education of funeral directors, and if properly fostered will, no doubt, develop into a full-fledged competent institution in due time. If what has already been done, and is being done by this organization, were advanced a step further, and a regular course of lectures on sanitary science were given under its auspices a great step in advance would be taken, and the foundation laid for a perfect system of education in the future.

It is especially important for the funeral director to know and to constantly bear in mind that the germ which produces tuberculosis abounds in the corpse of a person who has fallen a victim to it; that it permeates all broken-down tissue which has been given off from such a person; that in practical every-day life it exists upon the walls, furniture, and floors of rooms which have been occupied by consumptives, protected by particles of dried pulverized matter; that the corpse of a consumptive should not be kissed; that the room which has been occupied by a consumptive should not be swept, nor anything within shaken or violently disturbed; that everything which has been used by a consumptive, or has been in his room, and the room itself, should be carefully disinfected before being again used; that the floors and furniture of such a room should be scrubbed or washed with a strong solution of carbolic acid, and the walls, if painted, should be dampened and rubbed down with stale bread, and then washed with carbolic-acid solution, and if papered should be scraped, washed with mercury or carbolic-acid solution; that clothing, rugs, carpets, etc., can be most readily sterilized by boiling or exposure to dry heat not lower than 158° F.; that there is no danger from attendance at the funeral of a consumptive; that the bacilli in a corpse can be carried by earth-worms to the surface of the earth after burial; and that the things which have been used or have been about a consumptive, and that the quarters that have been occupied by him have been properly disinfected; it is perfectly safe for others to use and occupy them.

In regard to diphtheria the funeral director is especially concerned in disposing of the dead without danger to the living. In accomplishing this he should bear in mind that he is dealing with an inanimate mass which is a leaven of infection; that everything which he comes in contact with in the room in which the person

died and possibly in the house in which he lived, may be infected ; that members of the family of the person who died may be infected in their clothing or may even be suffering from a mild attack of the disease ; and that everything with which an infected person or infected matter comes in contact may in turn become infected. With these principles in mind and a proper knowledge of scientific sanitation the intelligent funeral director will be able to save many an innocent little child from a horrible death and will spare many a loving parent the indescribable anguish of seeing their sweet little babes suffer untold agony.

With cholera the funeral director must play a most important part in the conservation of the public health. Upon his scientific knowledge, cool, calm judgment, and conscientious performance of duty much will depend in preventing the disease from getting a foothold in a community. When death has claimed a victim, and the relatives, friends, and neighbors are panic-stricken and have no longer the presence of mind to protect themselves, he must protect them by seeing that with the safe disposal of the dead body every vestige of infection is destroyed. With the physician and the health officer he forms a trio upon whose intelligent action the safety of the community largely depends.

I will not go into further details. I have dwelt largely upon the germ theory of disease, and have given you some practical evidence of what has been accomplished in the development of that theory with a view of emphasizing the growing importance of the profession of funeral director in the light of modern science. The funeral director can indeed be made a most potent factor in the prevention of disease. As a scientific, well-equipped sanitarian he will not only be able to pay the last rites to the dead without danger to the living, but he will throw light upon and help to solve the very important question of how the dead can be disposed of so that they will not be a source of danger to the living during the process of resolution.

To Relieve Nausea.

Nausea is said to be promptly relieved by a mixture of four drops of creosote in two ounces of lime-water. Dose, a teaspoonful every fifteen minutes.

An Argument for the Use of "Whole-Wheat" Flour.

BY S. T. FRARY,

Cleveland, Ohio.



THE ANNALS OF HYGIENE has long been a welcome and valued friend in our household, and, although I am not a member of the medical fraternity, I should like to add my mite to the discussion regarding diet, about which so much is being written nowadays.

We have for some time sterilized our milk, as a result of reading your numerous articles regarding that most successful of disease-disseminators, but the subject in which we are most intensely interested is regarding the flour from which the staff of life is made.

For a year past we have utterly discarded white flour from our midst, and in its place have used a flour containing all the elements which an all-wise and infinite Creator designed for the proper nourishment of our bodies, but from which finite man, in his supreme egotism, calmly proceeds to remove as much of its nutritive element as is possible, by means of ingenious mechanical appliances which his misguided talent has enabled him to devise, and then, with the benign air born of true philanthropy, gives an admiring public a product which is about as valuable for a staple article of diet as plaster of Paris. But it makes white, delicate bread and cake, and the appearance and flavor are the only qualities requisite with the majority of people, who regard eating simply as one of the pleasures of life. This white fine flour, together with sugar (that other seductive net which his Satanic Majesty throws out to catch unwary mortals), is, I am inclined to think, the cause of nearly as much misery as Bacchus himself is held responsible for.

In our own family, the use of whole-wheat flour has been followed by marvellous results, and we embrace every opportunity of preaching its merits to those with whom we come in contact, in fact, our friends have long since classified us as belonging to the genus "crank." We were, therefore, highly elated at reaching the article entitled, "Imperfect Development a Direct Result of Improper Food," by John Ellis, M.D., contained in your February

number, and regard it as a powerful gun in our warfare on popular ignorance and prejudice, and fire it off at every opportunity.

Will not Dr. Ellis or some one else continue in this good work, by pointing out the evil consequent upon the pernicious habit of eating sweets, which is so prevalent at present.

106 NORMAN STREET.

A Valetudinarian in the Eighteenth Century.¹



AM one of that sickly tribe who are commonly known by the name of valetudinarians; and do confess to you that I first contracted this ill habit of body, or rather of mind, by the study of physic. I no sooner began to peruse books of this nature, but I found my pulse was irregular; and scarce ever read the account of any disease that I did not fancy myself afflicted with.

Dr. Sydenham's learned treatise of fevers threw me into a lingering hectic, which hung upon me all the while I was reading that excellent piece. I then applied myself to the study of several authors, who have written upon phthisical disorders, and by that means fell into a consumption; till, at length, growing fat, I was, in a measure, shamed out of that imagination. Not long after this I found in myself all the symptoms of the gout, except pain; but was cured of it by a treatise upon the gravel, written by a very ingenious author, who, as it is usual for physicians to convert one distemper into another, eased me of the gout by giving me the stone. I, at length, studied myself into a complication of distempers; but, accidentally, taking into my hand that ingenious discourse written by Sanctorius, I was resolved to direct myself by a scheme of rules, which I had collected from his observations. The learned world are very well acquainted with that gentleman's invention; who, for the better carrying on of his experiments, contrived a certain mathematical chair, which was so artificially hung upon springs that it would weigh anything, as well as a pair of scales. Having provided myself with this chair, I used to study, eat, drink, and sleep in it. I compute

¹This article is reproduced from Addison's *Spectator* of March 29, 1711, for two reasons, —firstly, it shows that in Addison's time introspection was not unknown; secondly, it serves to show what a person who cares for his health properly ought not to be.—ED.

myself, when I am in full health, to be precisely two hundred weight ; falling short of it about a pound after a day's fast, and exceeding it as much after a very full meal ; so that it is my continual employment to trim the balance between these two volatile pounds in my constitution. In my ordinary meals I fetch myself up to two hundred weight and half a pound ; and if, after having dined, I find myself fall short of it, I drink just so much small beer or eat such a quantity of bread as is sufficient to make my weight. In my greatest excesses, I do not transgress more than the other half pound ; which, for my health's sake, I do the first Monday in every month. As soon as I find myself duly poised after dinner, I walk till I have perspired five ounces and four scruples ; and, when I discover, by my chair, that I am so far reduced, I fall to my books and study away three ounces more.

I do not dine and sup by the clock, but by my chair ; for when that informs me my pound of food is exhausted, I conclude myself to be hungry and lay in another with all diligence. I allow myself, one night with another, a quarter of a pound of sleep, within a few grains, more or less ; and if, upon my rising, I find that I have not consumed my whole quantity, I take out the rest in my chair.

Notwithstanding this, my great care to ballast myself equally every day, and to keep my body in its proper poise, so it is that I find myself in a sick and languishing condition.

Commenting on this case, Addison says what the sanitarian of to-day would say,—

“But this care” (of the body) “which we are prompted to not only by common sense, but by duty and instinct, should never engage us in groundless fears, melancholy apprehensions, and imaginary distempers, which are natural to every man who is more anxious to live than how to live. In short, the preservation of life should be only a secondary concern, and the direction of it our principal. If we have this frame of mind, we shall take the best means to preserve life without being oversolicitous about the event, and we shall arrive at that point of felicity which Martial has mentioned as the perfection of happiness, of neither fearing nor wishing for death.”

A Word to the School-Marm.

BY W. THORNTON PARKER, M.D.,
Groveland, Mass.



RECENT article in the *Journal of Hygiene*, of France, calls attention to the care of the school-rooms. Pure air and pure water,—these are too seldom provided. An abundance of pure water exposed only in a wholesome room should be provided. During recreation the windows should be opened, and the school-rooms thoroughly aired. The sweeping of the room should be done with a moistened broom or cloth, and a suitable disinfectant should be used.

Whenever a child complains of being ill a thorough examination should be made, and if a fever is present the child should be promptly sent home. Where a contagious disease develops, such as whooping-cough, mumps, measles, diphtheria, scarlet fever, small-pox, etc., no child residing in the same house should be permitted to return to school until furnished with a proper certificate by competent medical authority. Where such diseases have broken out thorough disinfection of the school-room should be at once attended to. The floors should be washed with some suitable disinfecting solution. So far as possible the walls should receive like attention, and the ceiling should be whitewashed. According to the severity of the sickness the books, writing material, etc., should be disinfected or destroyed. The desk and chair of the scholar should be thoroughly washed with a disinfectant solution.

Every well-regulated school-house should have a well-appointed and wholesome lavatory, and it would be well after each recess to insist upon each scholar washing their hands before re-entering the school-room. A good disinfectant soap would be advisable. There are many mildly contagious diseases which might be prevented by this precaution. Some very severe and injurious diseases of the eye and of the ears could be prevented, and some diseases of skin as well; cleanliness is by no means "overdone" in our school-rooms. The clothing of children attending school should not be crowded together and allowed to be carelessly scattered about. It should be hung upon widely.

separated books in a room thoroughly ventilated, and, if need be, disinfected. Teachers cannot be too careful in noticing uncleanly habits in their scholars, and boldly and persistently rebuking them for such habits. Life-long suffering is sometimes prevented by so doing. When a contagious disease does develop, send the patient home at once, and upon the first opportunity after such discovery have the room thoroughly disinfected.

The Clinical Society of London has published the following table concerning contagious diseases :

Diphtheria.—Average period of incubation two days, occasionally as long as seven days. Virulence of contagion very great. Infection may occur at any period of the disease, and may be communicated by clothing, books, and other objects, for several months after exposure.

Scarlet Fever.—Incubation rarely reaches six days, usually very short. Contagious elements persist for months after recovery.

Small-pox.—Incubation about twelve days. Contagion may occur at any period of the disease. Infection through clothing, personal contact, etc.

Measles.—Incubation period from four to sixteen days. Danger of contagion exists during the whole disease, but disappears rapidly after convalescence.

Mumps.—Incubation period about eighteen days. Contagion greatest during first three or four days. The greatest protection for teacher and scholars is in *cleanliness*, and attention to this great necessity can never be overdone.

The duty of the teacher is to protect the clean from the dirty. Encourage habits of neatness and cleanliness, and of orderly behavior. The task is often difficult, but the result may be the saving of the lives of some of your scholars.

Never imperil a life by allowing a sick child to remain in the room after you have discovered the fact of sickness. The little patient's life may be saved by your promptness, or the action of contagion arrested, and your own and your scholars protected by your prompt and intelligent attention to duty.

Typhoid Fever and Drinking-Water.¹

BY VICTOR C. VAUGHAN, M.D.,
Member of State Board of Health of Michigan.



WE have 50,000 deaths annually from typhoid fever, and we know how to prevent these deaths. Why do we not do it? It is estimated that the life of the average adult is worth to the State \$1000. If a young man of from twenty to twenty-five years of age loses his life, it will cost \$1000 to raise another up to the same age; and I am sure that any father who is engaged in the pleasurable occupation of raising a family of boys will deny that it can be done so cheaply. But on this estimate, this government is losing 50,000 times \$1000, or \$50,000,000 annually in death from typhoid fever. This is not all that typhoid fever is costing us. For every death from this disease, at least ten other people are sick with it. Five hundred thousand people who do not die are sick each year with typhoid fever. We will suppose that the average duration of the sickness is twenty-eight days, and all physicians will agree that this estimate is too low. The person who has typhoid fever is often unable to resume his vocation within a shorter time than three months. However, we will make our estimate on the supposition that the average time lost from work by a man sick with this disease amounts to 500,000 times twenty-eight days, or 14,000,000 days, which is equivalent to more than 38,356 years. Supposing that the time of the individual is worth 50 cents per day when he is well; this represents an actual loss of \$7,000,000 annually, and this should be doubled, because for every person sick the time of another person who acts as a nurse is demanded. The \$14,000,000 added to the \$50,000,000 which are lost by death makes a total sum of \$64,000,000, or about \$1 for every inhabitant, the annual tribute levied upon this nation by the one disease, typhoid fever. This represents approximately the amount which we pay every year for the ignorance and carelessness which we exercise in allowing this preventable disease to prevail among us.

I have said that typhoid fever is a preventable disease, and

¹ From the New York Independent.

that the large number of deaths from this disease is unnecessary. This is true, not only theoretically, but practical demonstrations are not wanting. Prior to 1859, the city of Munich, in Bavaria, was a veritable hot-bed of typhoid fever. There were no sewers and no public water-supply. Most of the houses were furnished with large brick or wooden flues, which were built from the cellar up through the different floors. Into these the excretions from the body were dropped and accumulated in the cellars. Other waste material was deposited in cesspools, and garbage was thrown into backyards. The air in the houses was foul and offensive to the sense of smell. The drinking-water was taken from shallow wells in the yards, and these often received the ooze from the cesspools and vaults. In 1859 the citizens were compelled to seal tightly the bottoms and sides of these receptacles of filth, and, later, a system of sewerage was introduced, and later still a supply of wholesome drinking-water was obtained. Notwithstanding the fact that portions of the city still remained unsewered at the time of the last report, the results have been most gratifying. From 1852 to 1859 the typhoid deaths per 1000 in Munich averaged 24.2. This has been gradually decreased, until in 1884 it was 1.4 per 1000. This shows what has been done in an old and crowded city, and Vienna has practically repeated the demonstrations made by Munich. The majority of cases of typhoid fever arise from a contaminated water. That a drinking-water infected with the discharges of a person sick with typhoid fever may cause an epidemic of the disease there can no longer be any doubt. The records of sanitary science abound in histories of such cases. Every physician of large experience with this disease can detail one or more instances in which the disease has been clearly traced to infected water, and I will consider that this method of the dissemination of the disease is recognized by all. It probably is a safe estimate to say that bad drinking-water causes not less than 40,000 deaths each year in this country.

Water for the Baby.

The season has now arrived when we revive our annual reminder to thoughtless mothers that cross babies are often thirsty babies, and that constipated babies frequently are so because they are not given enough water. Very few mothers ever think of giving baby a drink, yet baby requires water just as mother does.

The Race Factor in Disease.¹

BY J. WELLINGTON BYERS, M.D.,

Charlotte, N. C.



INVESTIGATION in regard to the nature and influence of the contributory or predisposing conditions of disease demonstrates the fact that race, with its concomitants and peculiarities of tissue and structure, possesses and exercises an important modifying effect upon both the advent and type of morbid phenomena.

A gross comparison of the physiological characteristics of the white, yellow, and black races suggests a higher and lower form of organization, though variations in skin, hair, size, and shape of skull and face do not afford an explanation of these diversities of disease, and we must pass beyond these to still finer and more subtle peculiarities of tissues or cells as the ultimate causes. Recent developments in relation to the questions of immunity demonstrate that the vulnerable state is our partaking largely of cell incompetence, and exemption from infectious agencies depends upon cell actions and products. Such being true we must conclude that the factor of race carries with it certain inherent peculiarities of cell powers which control and modify disease processes. In saying this we must not be understood as implying that these conditions are themselves incapable of modification, for we know that climate, class, occupation, habitation, and mode of life will each and all cause a fluctuation in these inherent conditions; still, these qualities which exist by virtue of race are always more or less evident, and no amount of perturbing influences will completely and entirely suppress them. Hence it is that the Anglo-Saxon people show unusual tendency to scrofula and consumption and to diseases allied to these in character; the negro is exempt largely from malaria, scarlet fever, and yellow fever; and the Semitic people are prone to cancer and melancholia, though exempt from contagious disease to a degree warranting the idea that they possess a charmed life.

¹ From the American Therapist.

Nail-Biting as an Evidence of Nervous Disease.¹

DR. BERILLON, of Paris, who is chiefly known as a rather enthusiastic student of hypnotism, has published the results of what is announced to be a very elaborate study of nail-biting. He established the wide prevalence of the habit among French school-children. Thus in a mixed school of the Department of l'Yonne the reports showed the following results :

| | Number examined. | Nail- biters. |
|-----------------|---------------------|------------------|
| Boys | 29 | 6 |
| Girls | 21 | 11 |
| Total | 50 | 17 |

The proportion of nail-biters here was for boys 20 per cent., and for girls 52 per cent.

In a boys' school at Seine-et-Marne the pupils were examined with respect to age, with the following result :

| | Number examined. | Nail- biters. |
|--------------------------|---------------------|------------------|
| 12 to 14 years | 18 | 7 |
| 13 to 15 years | 16 | 6 |
| 15 to 17 years | 18 | 3 |
| Total | 52 | 16 |

From twelve to fourteen seems from this to be the age most susceptible to this habit. A like experiment with girls shows them to be even more susceptible at this age.

| | Number examined. | Nail- biters. |
|--------------------------|---------------------|------------------|
| 10 to 13 years | 80 | 27 |
| 12 to 15 years | 75 | 21 |
| 15 to 16 years | 52 | 13 |
| 16 to 17 years | 10 | 2 |
| Total | 217 | 63 |

In all the schools where the children have been the objects of careful and attentive observation, the reports have agreed in pronouncing that pupils observed to have the habit are univer-

¹ From the Medical Record.

sally the poorest students; that if boys they are inclined to effeminacy, and if girls to slackness. In many there are marked defects of character and less sustained attention. The reports of writing-masters also declare their writing to be, while sometimes well formed, universally less legible and less regular, and the instructors in the Parisian schools for manual training have pronounced the habitual nail biters hardest to teach and often unfit for technical education.

Among such pupils some have shown brilliant intellectual traits. Some are possessed of an astonishing memory, or show exceptional adaptability to certain arts or certain special studies. Of these "infant prodigies" a large proportion are found to be nail-biters. In such cases the exceptional brilliancy was of unnatural and ephemeral growth, and vanished at the age of fourteen or fifteen. The extraordinary development had compromised the normal evolution of the nervous system. In schools for children from six to eight years old those pupils cited by the matrons as most incorrigible, and upon whom fell the most constant discipline, were found, almost without exception, to be possessed of the habit.

In general, the nail-biters were found to be of decided inferiority, both from a point of view of intellectual development and from that of moral sensibility.

As to the cure, Berillon advocates strongly the grouping in classes of the children of the *lycées* who manifest the habit, where they may be subjected to special discipline and hygienic treatment on the order of that which is employed in the English system of reformatory schools. He is opposed to the isolation of pupils who have the habit, as practised in England, on the ground that cure by this means is only transient. Regarding the habit as an indication of nervous degeneration, he would in all cases begin by a careful system of food and exercise, and thus try by every means to fortify the nervous system of the child. For curing the after-habit, which continues when the cause has been removed, he employs his own treatment, which is as follows:

(1) To create a counter-irritant, and thus to transform by outward excitation the unconscious act into a conscious one.

(2) To create a counter-automatic impulse.

(3) To strengthen the resolution of the child. He adds to these the treatment by suggestion while in hypnotic sleep.

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PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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COMMUNICATIONS SOLICITED.

We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

A National Health Bureau.

A MAN passing along a country road sees a farmer leaning on his fence. Engaging him in conversation, he happens to ask how many children the farmer has. "Let me see [counting on his fingers], there's Mary and John and Joe and Tom and—and—and—Jim; yes, and Bob and [hesitating],—yes, that is all, six; [suddenly] oh! by gracious, I forgot the baby; that makes seven," was the reply.

A little while later this same farmer is asked how many sheep he has, and, without a moment's hesitation, he replies, "Forty-seven."

His minor children meant out-go and they were forgotten; his sheep meant income and they were remembered.

This farmer is a type of the legislator who legislates health to the lower animals and lets humanity shift for itself.

Humanity needs legislation more than the brute does; lower animal instinct leads more directly to the haven of health than does the so-called higher intelligence of man.

The exceptional man is a willing sanitarian; the masses must be legislated into sanitarians, being at the same time educated in the subject. A circular from the New York Academy of Medicine, asking us to advocate the creation of a National Bureau of Public Health, with simple and pathetic earnestness says,—

"In the light of modern medical discoveries, our people ought not to go on dying by tens of thousands each year from tuberculosis, typhoid fever, and diphtheria, for they are all preventable diseases."

Of course they are, and it is an outrage upon the people that those who do their legislating do not unanimously see the question in this light.

He would not stop at asking for a Bureau of Public Health *within the Department of the Interior*; the care of the public health is thoroughly worthy of a DEPARTMENT all to itself, and if Lord Beaconsfield is anything of an authority on political economy, a "Secretary of Public Health" should be high up in the Cabinet Councils of the President. Of course, we are enthusiastic on the subject of hygiene, but, laying aside as far as possible our enthusiasm, we cannot understand how argument is necessary to convince our national legislators of the desirability of such eminently and *evidently* desirable legislation.

No educated, unbiased man can shut his eyes to the undeniable fact that organized effort has checked the ravages of disease; such being the case, logic must convince us that still more thorough organization will be still more effective in the prevention of disease.

Is there any reason why this country should not have a "Secretary of Public Health"? If any congressman or senator can possibly formulate a reasonable objection, we will withdraw all that we have said on the subject. There is one thing sure (to him who reads the signs of the times), *that which we ask for is sure to come, sooner or later*; why not let it be *sooner*, so that we may save to each congressman and senator the lives of some few thousands of their constituents.

Certainly the expenses of one new "Department" will not bankrupt this country, and the end to be gained is undeniably worthy of the means proposed.

Aggregate Ascendancy—Individual Degeneracy.

THE question is very frequently asked whether the length of human life is increasing or decreasing. The answer to this question is generally a vague and indefinite evasion of a direct and definite answer; yet the question can be answered

most positively. Undoubtedly, the average length of human life is greater to-day than it was two or three hundred years ago ; all statistics prove this. There was a time when, in England, eighty persons out of every one thousand living died annually ; now, but little more than twenty pass away.

In Geneva, Switzerland, of whose population, births, and deaths an accurate record has been kept for three centuries, the average duration of life—

| | |
|-----------------------------|------------------------|
| From 1500 to 1600 | was 21 years 2 months. |
| “ 1600 to 1700 | “ 25 “ 9 “ |
| “ 1700 to 1800 | “ 32 “ 9 “ |
| In 1830 | “ 40 “ 5 “ |
| “ 1850 | “ 47 “ 0 “ |

The mean duration of life among the better class of ancient Romans was only thirty years, while to-day, among the same class in Great Britain, it is fifty years.

Similar statistics could be indefinitely multiplied to prove that the average of human life is on the increase.

But is this increase a matter for congratulation ? in a way, yes ; from another aspect, no.

The short average of human life in by-gone times was undoubtedly due to the devastating influence of the frightful epidemics and plagues, then so common, whereby thousands and hundreds of thousands of human beings were swept away in very short spaces of time. But those who resisted these evil influences, those who survived in spite of these destructive agencies, were beings of unusual vigor and health ; hence while more died, those who remained were more truly *men* and *women* in all that the words imply.

Public sanitation has conquered the plague ; no more do we find human beings dying so rapidly and in such multitudes that they cannot be decently interred ; but among the ranks of the living we find many more who are invalids, who are not hearty, healthy, robust persons ; we find many now living and moving and perpetuating their infirmities who, in the days of the plague, would have been swept with their weaknesses into oblivion.

Public hygiene, greatly in advance of personal hygiene, has increased the average of human life, but it has also increased the average of human invalidism, by helping to live those who, without this help, would have succumbed.

These protected invalids are perpetuating their species; hence, while longer-lived, we are gradually tending towards a less vigorous humanity.

Public hygiene has done, and is doing, its work excellently well. It is now time for personal hygiene to supplement this work. Now that public hygiene has vouchsafed a longer life to a greater number, it becomes the duty, and it should be the pleasure, of each of us to so strive that this longer life will be physically a better life.

Sanitary officials and sanitary legislation may increase the average length of life by nullifying the causes of wholesale death, but no amount of officialism or of legislation can secure personal health to the individual; this he must secure or lose for himself through himself, and by his own individual actions.

Household Disinfection.

SO much, and such a variety, has been written upon this subject that the lay mind is at sea as to what it is best to do in the presence of contagious disease. In our last issue we published an admirable article on disinfection, from the pen of the president of the Philadelphia Board of Health, but it was not an article designed for household use. Let us first understand what disinfection means. We must ever remember that the body of a person sick with a germ-disease is a laboratory wherein the germs of this disease are continually being made, and from which they are continually given out. Disinfection is the process by which these germs are deprived of their vitality and, as a consequence, of their power to produce the particular disease. In every case of contagious disease it should be the aim of the physician and the family to confine these germs to the sick-room, and to destroy their vitality as quickly as possible.

Heat of a very high degree is an absolute germicide, but it is not always possible to secure this agency in a private house. Of chemical germicides, the only one the merits of which we have never heard questioned is corrosive sublimate. Let us suppose a case of scarlet fever. The patient should be placed in a room as remote as possible from the rest of the family; the nurse should be installed, and from that moment until the termination of the

disease the nurse should never leave the room, and no one save the doctor should ever enter it.

All drug-stores sell tablets of corrosive sublimate, the dissolving of which in different quantities of water will give solutions of varying strength. A sheet always saturated with a 1 to 1000 solution should hang in the doorway, while towels similarly saturated should be hung here and there about the room, so that as the germs floating about the room light upon these sheets and towels their vitality is destroyed. A little steam atomizer (to be bought in any drug-store for a couple of dollars) should be started up every two or three hours, so that the atmosphere of the room may be always well impregnated with the solution of corrosive sublimate. Every dish carrying meals should be immersed in a solution of corrosive sublimate for half an hour before it is handed out of the room. The doctor should envelop himself in a gum-coat or linen duster before approaching the patient, and when ready to leave the room should subject his hair and beard, hands, face, and gum-coat to the corrosive-sublimate spray from the little atomizer.

When the case has terminated and the patient is removed, the room should be tightly closed, and a sulphur candle (to be bought at any drug-store) *placed in a basin of water* be allowed to burn therein. After the sulphur fumes have remained in the room for twenty-four hours, every window should be thrown open, and the room aired for several days. Then, if possible, the paper should be scraped from the wall and burnt; and all wood work should be well scrubbed with corrosive-sublimate solution.

This is a homely exposition of the subject of disinfection, but it is intended for the public, and only such directions have been given as can be easily carried out in any family. We would lay special stress upon the atomization of corrosive sublimate, because in practice we have never yet failed to confine the disease to the original case, when this precaution has been faithfully observed. The only difficult matter in our suggestions is the prolonged confinement of the nurse; this should not be; but if it is impossible, then the nurse should scrupulously disinfect herself and her clothing with the corrosive-sublimate spray before leaving the room.

Simple as are these suggestions, they would, if faithfully carried out in every case of contagious disease, do much, very much, towards the final eradication of such diseases.

Commercial Disinfectants.

A SUBSCRIBER in "Titusville," Pa., will find the answer to his letter of March 31 in this editorial. This correspondent sends us a commercial disinfectant or germicide, and asks our opinion as to its merits. We regret that we cannot give him a positive answer. There are many chemical agents vaunted as disinfectants, or germ-destroyers, but, as we state elsewhere, the only article whose ability to destroy germ vitality we have never seen questioned is corrosive sublimate. We do not know what the ingredients are in the article sent to us, hence cannot express an opinion as to their value. What we have said will apply equally to the host of "disinfectants," offered for sale in stores. They *may* be good; we do not say that they *are not*; but, for ourselves, we always rely upon corrosive sublimate, for the reason given, that it is the only agent whose utility, in this connection, we have never seen questioned.

Self-Limited Diseases.

THE best treatment of typhoid fever, says an eminent physician, consists in *free ventilation of the sick-room*, cold sponging, and small doses of phenacetin. Please note that this wise man places *ventilation first* in his list.

Dr. Oliver Wendell Holmes tells us that humanity would be better off if all the *drugs* in the world were thrown into the ocean, then, he adds,—“but God help the poor fish.”

Every intelligent physician full well knows that *he* cannot *cure* disease; he knows that almost all acute diseases, and absolutely all acute *germ-diseases*, are self-limited; that they *must* run their course in spite of drugs, and that all he can do is to assist the patient, by hygienic measures, in the conflict between life and death, health and disease, that is going on within. The sensible doctor would use very few drugs, if he could have his own way; but, unfortunately for humanity, he cannot. The people do not want *advice*, they want *drugs*, and they will employ the doctor who will give them drugs; relegating to the ranks of ignoramuses those who are intelligent enough not to use them. We are truly ashamed to write about three-quarters of the prescriptions that we do write, but we cannot help ourselves; the people won't let us do otherwise.

Looking Out for Yellow Fever.

IT is a matter of satisfaction that, as the season when yellow fever is possible has arrived, to know that the proper authorities have taken the precaution to "lock the stable-door before the horse has escaped." Early in May, the Supervising Surgeon-General of the Marine Hospital Service issued instructions to all masters of vessels sailing from all South American, Central American, Mexican, and West Indian ports, particularly from Cuba, that if yellow fever, or any fever that is suspected of being yellow fever, appears during the voyage, or if there is any reason to suspect that any vessel is infected with yellow fever, that such vessel shall repair to the United States Quarantine Station for inspection and treatment.

Because of the epidemic of this disease in Brunswick, Ga., last summer, Surgeon Murray will be kept constantly on duty there during this season; while Dr. John Guitéras has been assigned to examine the mortuary records of the several Southern cities, with the view of ascertaining any unusual mortality from fever, which is usually a forerunner of an epidemic of yellow fever. The Board of Health of Brunswick, Ga., is in hearty sympathy and accord with the Marine Hospital Service, and it is very unlikely that this dreaded disease will gain any foothold in the South this summer.

Disease from the Lower Animals.

IT is, we think, the part of wisdom to stem the tide of popular sentiment on this subject. There is a scientific aspect to this question, and it should be clearly understood. Dr. Thorne, of London, asserts his belief that a large number—if not, indeed, the great majority of our specific diseases—come to us through the lower animals, or have come from them in the past. Doubtless he is right, and doubtless, also, many diseases come to us from the vegetable world, a field not yet explored, but well worthy of exploration. The wholesale slaughter of valuable animals, daily recorded in the public press, is, we think, the morbid outcome of this scientific declaration. While we believe that tuberculous cattle may, and do, produce tuberculosis in the human being, we are quite confident that foul air and lack of

exercise are responsible for an infinitely greater number of cases. We would not be understood as belittling the causative agency of tuberculous meat in the production of tuberculous disease in man, but we are unwilling to descend from the hobby we have satisfactorily ridden so long that *pure air* and *well-developed lungs* will cure more cases of consumption than this wholesale slaughter of tuberculous cattle will prevent. Every undoubtedly tuberculous cow should be killed, we admit; but are we not, in our enthusiasm, slaughtering many animals whose flesh, if *thoroughly cooked*, would make perfectly healthful nutriment? We must not forget that heat destroys the vitality of disease-germs, and that a dead germ is but a microscopic mass of organic matter, devoid of power to produce any specific disease.

The Possible Duration of Life.

WE have been always much interested in the question as to what period or length of time was included in the word "*year*" in ancient biblical days. Thus, when we read that Adam lived for 930 years, what does it mean? Were Adam's years made up as ours of to-day are?

It might seem reasonable to suppose that, as we jump back to man in his original state of physical perfection, before the vices and unnatural methods of life had deteriorated his physique, it might not be unreasonable to imagine that he might have enjoyed a much longer period of human existence than is now possible to him.

If it be that a year then was the same as a year now; and if it be that the average of human life was, by Divine decree, reduced just before the Deluge from 800 and 900 years to 120 years, why do we find Sarah, at 90 years of age, ridiculing the possibility of conception. Ninety is as to 120 what 45 is as to 60. The average length of life to-day is much less than 60, yet no one wonders at a woman who conceives at 45.

If then the average length of life in the days of Sarah was 120 years, and if these years were proportionately divided into periods of functional activity and functional decadence, as they are now, why should the feasibility of conception at 90 be questioned.

What does the biblical "*year*" mean? If it meant what it means to-day; if Adam and Noah and Methuselah lived 900 of

our years, why can we not do the same? That we do not is a fact, and that even an *occasional* instance of such extreme longevity does not occur, would seem to argue that we cannot.

After the epoch-marking period of the flood, we find the limit of human life recorded as about 120 years. Scientists of to-day agree that it is possible for man to live for 100 years, and in fact we do see one person out of every 4000 born reaching the age of 100 years.

Thus we have biblical, scientific, and practical evidence that it is possible for a human being to enjoy 100 years of human existence; that this measure of longevity is within the reach of humanity; not possibly of you or I or of each individual, who may be handicapped by the inheritance of centuries of accumulation of physique-deteriorating vices or causes; but that it is a *possibility* within the reach of humanity.

Is it not possible that the antediluvian "900 years" really figured a period of time equal in extent to the postdiluvian 120 years?

Whatever the "year" did mean, it looks as though we of to-day might have reason to consider ourselves, as a whole, entitled to 100 years of life, and, since as stated elsewhere, public effort has removed to a great extent the causes of wholesale death, it behooves us as individuals to so strive for personal health that in time to come our descendants may be restored to that measure of longevity to which all reason points they are entitled.

Swimming as an Exercise.

A SUBSCRIBER in Waco, Texas, asks for an expression of opinion as to swimming as an exercise, especially for women. There comes to our mind the expression of an old atheist, with whom we once conversed, that "there is no such thing as evil; everything is good, some things less good than others; but nothing evil." Exercise means muscular motion, and every muscular movement is an exercise. All muscular movements are good, none of them evil; some less good than others, but all good. But when we say this, it must be distinctly understood that we draw a radical distinction between muscular *motion* and muscular *strain*.

If two women engage in a swimming contest, either of endur-

ance or speed, it is not simply *motion*; it is *strain*, and, as such, is not to be commended.

If a woman or a number of women enter a swimming-pool of clean, tepid water, and disport themselves therein without contest, it is a most commendable form of exercise. In all forms of exercise, mental as well as physical, contests are injurious; we are not all equally strong, mentally or physically, and it is the inevitable accompaniment of a contest that the weaker organism is strained in the effort to compete with the stronger.

A Penalty of Success.

Dr. F. L. Oswald is contributing to *Good Health* a series of very interesting and instructive biological health studies, pointing his remarks by apt references to the untimely and unnecessary deaths of men of national and world-wide fame. Two of his recent articles deal with the late universally-lamented Mr. George W. Childs, of this city, and Mr. Joseph Keppler, the founder and presiding genius of *Puck*. To these two we can add a third, in the person of Mr. Edmund Yates, the late-distinguished London journalist. Shorn of its beautiful rhetoric, Dr. Oswald's idea is that if the man of 50 or 60 will persist in living as he did at 30, he *must* die prematurely. This is a *fact*, and volumes of words will not make it any less or any more of a *fact*. The immutable laws of physiology provide for structural changes as the man of maturity passes into the man of age, and he who fails to realize that these changes gradually taking place call for a gradual change in habits of life, will pay for his want of perception with his life.

As age slowly creeps upon the *successful* man, from whom success has removed the incentive to activity, a sort of unconscious indolence and fatal fondness for the table is very apt to take the place of his former activity and abstemiousness, and, unless guarded against, these inclinations of successful age will favor those structural changes inimical to life. The man of 60 may *feel* as young as the man of 30, and it is well for him to so *feel*; but, physiologically, he is not as young, and it will be well for his chances of longevity if he recognizes this fact, and lives accordingly.



Clean Streets in Rome.

Rome is behind the times in many respects, like many other European cities, in American eyes, but it has the merit of immaculately clean streets. They are cleaned on the block system, and men are seen everywhere, in the poorest parts of the city as well as in the principal thoroughfares, constantly sweeping up the refuse and depositing it in baskets, whence it is removed at frequent intervals in tightly-covered hand-carts.

Pensioning Sanitarians.

New York now has a law establishing a pension fund for the physicians, nurses, clerks, and other employés of the Health Department who have served a term of twenty years, and also for the families of employés dying in the discharge of duty. Pennsylvania must wake up, else its sanitarians will migrate, in a body, to New York, leaving the Keystone State to the tender mercies of the omnipresent bacillus.

Work.

Sir Andrew Clark, who recently died, the leading physician of Great Britain, at nearly 70 years of age, was always a very delicate man, one of those physically unfit to survive, but who did survive, because he lived as he should. One of Sir Andrew's prescriptions for longevity was "*work.*" It is undoubtedly a fact that well-directed work is an aid to health and longevity. Overwork, pure and simple, so much talked of by the laity, is not recognized by the profession. One cannot make too many easy, gentle muscular movements, but he can readily strain and injure his muscles; so one cannot do too much gentle, congenial work; but he can readily strain and fret and worry himself into invalidism. Congenial work is healthy pastime; uncongenial work is life-destroying labor; idleness shortens life; activity prolongs it.

Make Haste Slowly.

You won't do it, but all the same, we warn you that, if you do not move slowly in this kind of weather in life, you will move rapidly to the grave. You trust your physician's advice blindly in the matter of poisonous drugs; will you not take our advice as to the prevention of the necessity for the use of these drugs. Turn off steam; bank your fires; lock your office-door, and take things easy until the cool weather comes around again; it will add many years to your lives.

Do Animals Commit Suicide?

Not very often, for it would really seem that the instinct of the brute is a better preventive of that condition of melancholy conducive to suicide than is the boasted superior intelligence of man. Yet suicide among the lower animals is not entirely unknown, for Dr. Robert S. Newton tells us that in Norway there is an animal that resembles in some respects both the beaver and the otter, and it has been observed that every sixteen years droves of these animals go to the water's edge, separate themselves into two groups, those of one group plunging into the water and deliberately committing suicide, making no attempt at rescue, notwithstanding their ability to swim.

Laziness.

Variety is the spice of life, and periodical laziness is a good thing for the busy man or woman, especially for the brain-worker. Vegetable life labors in spring and summer and in winter rests; in winter it is lazy. Laziness should not be so thoroughly regarded as a word of reproach as it now is. Very few persons are really what the word lazy implies,—that is to say, very few persons are physically and mentally idle because they deliberately wish to be so; some there are, but not many. Periods of laziness in an habitually active life should be encouraged; chronic laziness should be carefully examined to see if it be not the beginning of chronic disease; many a person in the early stages of chronic organic disease has been unjustly and uncharitably accused of laziness, and his disinclination for work has been falsely attributed to vice, when in reality it is due to physical infirmity.

Get Vaccinated.

Small-pox is on the war-path. It is not very savage, as yet, but reports from here and there make evident the existence of many points of infection from which it is possible for the disease to spread extensively. Cranks to the contrary, notwithstanding, vaccination is an almost absolute safeguard against small-pox, and we strongly advise all our readers to resort to this method of protection. It will do no harm, and may save your life.

Gladstone as an Exponent of Common Sense.

What American statesman would resign a post of great distinction in deference to the preservation of his health? Gladstone has done so, and thereby proves not only his greatness, in the ordinary acceptation of the term, but his surpassing greatness in that almost unique, almost unknown, attribute of "*common sense*," for common sense is, verily, the rarest of all senses. Whatever may be Gladstone's niche of honor in the history of statesmanship, he will be handed down to posterity, in the history of hygiene, as a practical and wonderful possessor of "*common sense*."

The Sultan of Turkey as a Sanitarian.

Those of our readers who have been taking this Journal for some years will recall the picture of the Holy Well at Mecca, which we published some time since, and designated as "The Home of Cholera." Not to repeat what we then said, we would simply remind our readers that in this well filth beyond description has been accumulating for centuries, notwithstanding the holy character of the water, and that from this point cholera has been scarcely ever absent. This well has been for years a menace to the whole world; but now we are glad to be able to record that the Sultan of Turkey has decided that the pilgrims to Mecca must obtain their drinking-water from other and purer sources, while the drinking of well-water has been absolutely prohibited. A hospital with 200 beds has been erected at Nima, while at Mecca another hospital containing 400 beds has been established. Baths, drug-stores, apparatus for disinfection, etc., have been provided. The present Sultan of Turkey is said to be a very progressive and enlightened man, and the facts that we have recorded only lend additional evidence to the proof of this fact.

Eat Slowly.

This is a time-worn precept, but observation convinces us that it has not been repeated too often. Dr. Jacobi insists that proper digestion demands, above all, a gradual introduction of the food into the stomach, for the gradual secretion of the gastric juice must correspond with a gradual filling of the stomach. Slow eating is an item of domestic economy; we all eat much more than we require; did we but eat slowly, we would be conscious of this fact, and the grocer's and the butcher's bills would be correspondingly diminished.

Linear versus Cubic Air-Space.

It seems to us a valuable and practical thought, that is suggested by an eminent English sanitarian, that in computing the human-being holding capacity of a school or other public room, we should be guided rather by the linear than by the cubic measurement of such room. A very high ceiling will add greatly to the cubic dimensions of a room, but may it not be, as suggested, that, unless some artificial means of keeping the air in motion is in use, the air above the level of the occupants of the room may not be utilized, that within their reach being breathed and breathed again. We are familiar with the law of diffusion of gases, in spite of which we think there is probably some force in the thought suggested.

Some Facts Bearing on the Causation of Typhoid Fever.

It is a fact that cold does not destroy the vitality of disease-germs, and now it would seem to be a fact, from Dr. Cyrus Edson's contribution to the *Medical Record*, May 5, that water contaminated with typhoid-fever germs purifies itself much more efficiently and with greater rapidity in warm than in cold weather. The following table shows the average per month of the number of bacteria per cubic centimetre in Croton water:

| | | | |
|--------------------|-------|---------------------|--------|
| January | 6,828 | July | 302 |
| February | 5,202 | August | 394 |
| March | 3,122 | September | 429 |
| April | 1,180 | October | 527 |
| May | 1,078 | November | 705 |
| June | 392 | December | 10,465 |

Constipation and Catarrh of the Stomach.

How many persons suffer from catarrh of the stomach, and how much have we said about constipation; and now we find Dr. Amalfi, of Naples, stating that chronic catarrh of the stomach, which is so common among the Neapolitans, is due to the hot climate, a too copious and too exclusively farinaceous diet, an immoderate use of drugs, and, *above all, constipation.*

Another Nonagenarian Farm Boy.

Mr. Frederick Fraley, who is known everywhere not only for himself, but because he was the exceptionally able chairman of the Centennial Board of Finance, recently celebrated his ninetieth birthday. At the banquet which graced the occasion the toast-master said that Mr. Fraley's entrance to public life was when, at the age of 13 years, he assisted President James Monroe in driving nails in some of the timbers of the Bridesburg Arsenal, located on his *grandfather's farm* on Frankford Creek. Here it is again a *farmer's boy* at one end of a long life, the most respected citizen of a great city at the other end. Has any *city-born-and-bred* person ever lived a life of ninety years of usefulness? We doubt it.

The Strongest Man at Harvard.

A new strength record has been made at the Hemenway Gymnasium, Harvard, by Edward Klein, '95, of Deerfield, Mass. The best previous record up to this time stood to the credit of S. L. Foster, '85, in 1884. His total strength was 1348.8 points. Klein's total of 1445.6 points is made up as follows: Strength of lungs, 23; strength of back, 340; strength of legs, 740; strength of upper arms, 201.6; strength of right forearm, 78; strength of left forearm, 63. Klein's record is likely to stand for some time, unless he himself improves upon it. His total last year was 1015.2. By Dr. Sargent's system of measurements, the total is determined as indicated above. The strength of the upper arms is calculated by adding the number of times the man pushes himself up on the parallel bars, or, in other words, the number of times he dips to the number of times he pulls himself up on suspended rings, and by multiplying this sum into one-tenth of the weight.

The Value of Change.

Effect always follows cause, and it is therefore but fair to infer that when an effect occurs, if the cause that has produced it be removed the effect will disappear. This is undoubtedly true of disease, but, unfortunately, it is not always possible to fathom the cause. However, there is much wisdom in the generalization of the great Napoleon, who, if taken sick while resting, resorted to exercise; if taken ill while hard at work, rested.

The Surgical Meaning of Dust.

Haegler believes that dust is full of infectious material, either on the floors, walls, or furniture, and is easily set in motion by currents of air. He recommends perfect quiet in removing dressings, with everything at hand which may be required. Special care should be taken in removing dry dressings from infected wounds. Spots on dressings encrusted with pus should be wet with sterilized water, and placed in some antiseptic fluid as soon as they are removed.—*Centralblatt für Gynäkologie*, No. 48, 1893.

Contagious Sore Throat.

The doctor is often asked whether a sore throat that he is attending is contagious. If he will regard every sore throat as not above suspicion, and act accordingly, he will be on the safe side. Dr. Thorne, an eminent English authority, says that he does not know where sore throat ends and diphtheria begins, but no child who is suffering from any form of sore throat should be allowed at school, nor even any one from the house in which that child resides. Dr. Thorne does not think that the germ of diphtheria can invade a healthy throat, but that any kind of a morbid throat is just the pasture in which this particular germ delights. In the Welsh valleys, where the houses are built right into the slopes of hills; the walls always wet and the floors always mud, in the cold weather, the people all get sore throats, this passing from one to another, gradually growing worse and worse, until it culminates in an outbreak of diphtheria, from which Dr. Thorne argues that, flourishing in an ordinary sore throat, there is a progressive increase in the infectiousness of the organism that produces diphtheria.

A Result of Constipation.

A physician relates to us a somewhat curious case, wherein every afternoon his patient had a fever, but no other evidence of any acute or chronic disease. For weeks various remedies were tried, but the fever persisted. Finally, a large dose of castor oil was given, and, for one week, there was no recurrence of the fever; but, at the end of this period, the old annoying symptom returned. Now, every day for one week two ounces of castor oil were given; great quantities of little hard balls of faecal matter were passed and the cure was complete.

The Influence of Fatigue on Digestion.

It is a well-known physiological fact that it is not proper to eat a meal when overly fatigued. Now, Salvioli has been recently making some experiments upon this subject, and he finds that a certain amount of albumen introduced into the stomach of a dog when resting was wholly dissolved after three hours. The same amount of albumen introduced into the stomach of a dog at work was scarcely one-half dissolved in the same time. This is a matter of interest, of very practical interest, because it clearly explains to us the necessity of a few moments of rest before a meal, and it also carries with it the suggestion of the wisdom of a little rest subsequent to a meal.

The Fatal Effects of Sewage.

Have you ever kept gold fish? If so, you know that it is necessary to have growing vegetation in the jar that the fish inhabit; and why? Because the waste or sewage from the fish themselves, if consumed by them, will prove fatal to them. All animal waste must pass through vegetable life, back again to animal life, and if this natural cycle be interfered with, fatal results ensue. That which is true of gold-fish life is equally true of human life; if sewage, which is the waste of human life, comes back to us in the water that we drink, the air that we breathe, and the food that we eat, without having previously passed through vegetable life, health and life will suffer therefrom. Animal death supports vegetable life, and vegetable death maintains animal life; this is nature's cycle of organic matter, and it cannot be interrupted with impunity.

Disease-Germs in the Mud of a Well.

A very interesting observation has recently been made near Odessa in connection with an epidemic of glanders among sheep. It was noticed that only those sheep were affected with the disease that drank water from a certain well. An examination of the water of this well revealed the entire absence of any of the germs of the disease, but when the mud from the bottom of this well was examined the germs were found in abundance.

Artificial Coffee.

“It will, perhaps, be news to many to know that tons of artificial coffee are being made and sold for the purpose of mixing with and adulterating coffee,” says a writer in *March Household News*. “The grains are stamped out, colored, and roasted so as to look exactly like the genuine article, and would, if mixed with genuine coffee, easily deceive an unskilled eye. The fact that the color of the artificial does not usually match that of the fresh roasted is one of the methods of detection; and if the fraudulent grain is bit into its lack of taste and its hardness will expose the fraud. Some of the artificial coffee is made to imitate the raw coffee grains, and may also be found in it as an adulterant”

High Buildings in New York.

We are glad to learn—says the *Medical Record*—that the subject of high buildings in this city is being discussed, with a view to remedying what will shortly be an unmitigated nuisance. Mr. George B. Post, the eminent architect, and himself the designer of many of the tall structures, strange to say, is the one who is first in denouncing the system. The whole matter resolves itself into questions of air and light for surrounding buildings, particularly in narrow streets. Many of the latter are deprived of sunlight entirely, while apartments are so darkened as to require artificial light, and the ventilation is so defective as to cause sickness among the occupants. Every sanitarian must agree that the only remedy is a suitable legal enactment to prevent the erection of buildings beyond a suitable height, consistent with abundance of light and air for the neighborhood. We have small enough air-space in the city already, and we shall have less and less if the present state of things continues to exist.

Children Neglected.

When in my walks, says a distinguished doctor, I see little tots of four and five start out for school in the morning, carefully hooded and mittened, and then again watch them as they come home with coats unbuttoned, mittens mislaid or dangling from their pockets, rubbers carelessly forgotten, I wonder how many sore throats, how many earaches there will be next day, and I feel like running after each and every one of them in a fruitless attempt to secure all the lost buttons and missing rubbers or mittens, and of saying to their mothers, "Do keep your babies at home until they are old enough to have learned something about the care of their own little bodies."

Disease Carried by Flies.

Bank-notes and books have already been suggested as a medium of conveyance of disease-germs, and so also have we on previous occasions referred to the fly as a conveyer of disease. In fact, it would seem as though anything and everything can be the means of transmitting disease from one person or place to another; and such being the case, it would be very foolish for us to be always in a state of morbid fear, such as would be the case should we not use our intelligence and reason a little about these matters. Any one who notices that which is going on about him must be aware that the fly seems particularly anxious to investigate minutely all accumulations of filth. If clean sugar attracts a myriad of flies, so equally does putrid meat, vomit, discharges from the bowels, and any and every conceivable kind of filth. And when we realize that the fly that has been but a moment before feasting upon rotten beef may be at the next moment walking over our lips or at the edge of our noses, can we not readily believe that they may be and frequently are the means of conveying disease? We must frankly admit that we are at a loss to suggest a remedy. Flies are most beneficent creatures. They are most undoubtedly good scavengers. They must certainly consume very much that, if left unconsumed, would be very prejudicial to our health. Hence, while there is a possibility, and very likely a probability, that they do sometimes bring to us disease, yet, on the whole, we can regard them as most excellent little sanitarians, whose chief function in the economy of nature is the removal of the causes of disease.

Rheumatism in Past Ages.

We do not know that it will afford any special consolation to the victim of rheumatism, but it may interest him to know that it is a very ancient disease. Recently some Egyptian mummies have been unearthed the bones of which present evidence of chronic rheumatism. And, by the way, for the benefit of any of our readers who may be victims of chronic rheumatism, and who may have gone from one doctor to another without experiencing relief until they have become utterly disgusted with both medicine and medicine-men, we would say that, without an abundance of exercise and the regulation of diet, chronic rheumatism not only cannot be cured, but cannot even be held in check.

The Survival of the Fittest.

In all animate nature, be it in the animal or the vegetable world, the fittest survive, to the extinction of the unfit. Life of all kinds is a struggle, and the man or the vegetable that is equal to the struggle will continue alive; while the vegetable or the man who is unequal to the opposing forces will cease to exist. This is an undoubted truism. But in this struggle it is possible for the struggler to receive assistance from others, so that he who, unaided, could not survive, can, thus assisted, win the struggle.

Before the advent of scientific hygiene, those only survived who, unaided, were able to resist the opposing forces; those thus fit lived; those thus unfit died, and this was the end of it.

By the aid of public hygiene, many unfit have been helped to survive, and there are those who find fault with *Hygeia*, because she has thus enabled those to survive whose survival does not redound to the general good. While this view may be accepted by some, it is certainly a hard and ungracious verdict to pass upon those who, possibly, through no fault of their own, have been rendered unequal to the struggle.

But since those who are not fit have been thus helped to survive, it certainly behooves them to so strive that they will ultimately become fit, thus demonstrating that the confidence reposed in their desire to do right, by *Hygeia*, has not been misplaced. These unfit ones have been helped; let them now supplement this help by helping themselves.

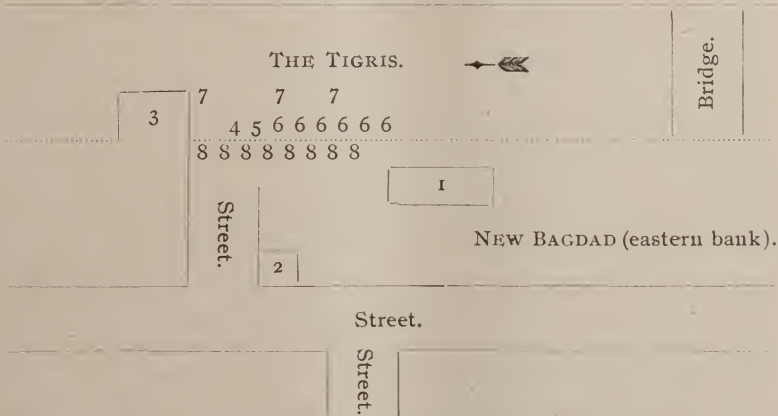
Suburban Life and Heart-Disease.

It would almost seem that there is nothing good without its evil aspect ; while we are congratulating ourselves that the more thoughtful portion of humanity is abandoning urban and taking up with suburban life, we are confronted with the statement that heart-disease in persons past fifty years of age, caused by *running for trains*, is alarmingly on the increase. But persons have no business to *run* for trains, hence this evil is easily obviated, and that it may be obviated is our reason for calling attention to it.

A Sanitary Sermon.

We know Dr. John C. Sundberg, otherwise we could hardly credit this diagram which he sends from Bagdad to the *Pacific Medical Journal*. Is it any wonder that these Oriental countries are continually ravished by disease, and does it not seem like the quintessence of satire for Bagdad to have a board of health ? Dr. Sundberg tells us that in one week 336 persons died from cholera ; our only wonder is that anybody should live amidst such surroundings.

OLD BAGDAD (western bank).



1, United States Consulate. 2, Board of Health. 3, A house built out in the river, the wall of which stops dead cats and dogs, human faeces, etc., floating down. 4, Place where the water-carriers take the water which we have to drink. 5, Women and men washing clothes, rugs, etc., stained with cholera dejecta. 6, A row of men defecating in the water and washing their ani, also urinating. 7, Dead buffaloes, horses, dogs, cats, etc., floating down the river. 8, Water-carriers' donkeys always urinating and defecating while waiting for their loads.

The Comparative Mortality of Man and Woman.

We would advise those of our readers who are desirous of longevity not to become advocates of so-called "Woman's Rights," for, as woman encroaches more and more upon the sphere of man, she may find herself obliged to accept all of his conditions, one of which is a shorter duration of life. In very early life female mortality is much less than male. During the climacteric period (from 46 to 56 years of age) the male mortality is nearly double that of the female, so that this period, which is usually regarded as a critical time for the woman, is in reality much more so for the man. These statements are based upon exhaustive statistics published by Dr. Symonds in *The American Journal of the Medical Sciences*.

Athletics and Life Insurance.

We are almost ashamed to again advert to the fact that we have so often written upon this subject in our effort to make clearly understood the distinction that we draw between exercise for health and exercise for strength. It is a most unfortunate fact in connection with humanity that it seems almost impossible for human beings to avoid excess in anything. The happy medium always talked about and always recommended seems almost impossible of achievement. We have always endeavored to make it clearly understood that violent exercise, while undoubtedly conducive to muscular strength, very frequently produces vital weakness. That is to say that the strain and exertion of violent exercise, while it may develop and strengthen the muscles, not infrequently does so at the expense of the vital organs. And now we find a writer in the *New York Medical Examiner* (a paper devoted to life insurance) making the statement that great athletes are quite frequently found unfit to pass the physical examination necessary to procure life insurance.

Of course, we can hardly expect that a young man ardently fond of athletics and anxious to develop his muscular strength will consider the results; but since the majority of young men expect some day to be married, and have wives and families to provide for, we would ask them to consider that by exercising to excess now they may render themselves unable later on to procure that life insurance that they will then so much desire for the protection of their families, those near and dear to them.

Disinfection of Cabs.

For a long time the State Board of Health of Pennsylvania has been endeavoring to persuade the legislature (and it will keep on endeavoring until it is successful) that it would be a very wise thing to pass a law inflicting a penalty upon any hotel or boarding-house keeper who would rent a room that had been occupied by a case of contagious disease to another person until said room had been thoroughly disinfected; and it would include in this law the disinfection of cabs. There can be no question but that very much disease is contracted by persons picking up a cab on the street that is standing about for hire, this cab having been previously occupied for the conveyance of a person sick with some contagious disease. If the driver of this cab should rob his passenger of his pocket-book there is a law to punish him, but he may knowingly rob his passenger of his health or even of his life with impunity. This is all wrong, and the time is rapidly coming when our lawmakers will see that it is wrong.

A Proposed Classification of Infectious Diseases.

Before the New York Academy of Medicine, Dr. Thomson recently defined *infectious* diseases as those diseases due to the presence of their respective living micro-organisms in the body; and he, furthermore, proposed to make three divisions of infectious diseases: (1) *Communicable*; those diseases whose origin is from an animal body; such as small-pox, cholera, and tuberculosis. (2) *Non-communicable*; those diseases whose origin is not from an animal body, but from a place or thing, such as ague, yellow fever, and miasmatic diseases in general. (3) *Septic Diseases*; those diseases in which infection is introduced through a wound or abrasion, such as erysipelas, hydrophobia, and lock-jaw. He would divide communicable disease into (1) *contagious*, where simple proximity to the sick is sufficient to communicate the infection, such as scarlet fever, measles, small-pox, diphtheria, etc., and (2) *non-contagious*, where the communication is not by simple proximity, but through intermediate means of communication. In the first instance, *isolation* is imperative; in the second, it is not so necessary, but disinfection is our sheet-anchor in all. Dr. Thomson believes (and so do we) that all classes of infectious diseases are capable of being disinfected out of existence. This proposed classification, while regarded favorably by the Academy, has not yet been finally adopted.

Symmetrical Development.

Those who have read General Lew Wallace's famous novel will recall how Ben Hur, seeking muscular development for a purpose, when a galley-slave, asks permission to row first on one side then on the other side of the boat, that each half of his body may be equally developed.

The blacksmith wields his sledge with as little difficulty as the child handles its toy, but, ten to one, he cannot run a quarter of a mile without putting himself out of breath. The farmer manages his heavy plow all day with ease, but a proposed walk of twenty-five miles would frighten the life out of him. Excessive development of one part is not desirable; moderate development of every part is the condition most conducive to health, and this can best be secured by the gentle use of *all* our muscles. Motion always implies the use of muscles, and the systematic practice of every motion which ingenuity suggests the body as capable of will assure to us symmetrical development and the health that waits thereon.

Constipation.

"Everybody in this house is troubled with constipation, doctor; what shall we do?" was the remark of a fashionable dressmaker to us recently; and "everybody in your house put together will not walk one mile daily," was our reply. A horse standing in his stall will become constipated, and so will a human being. We gave this lady some medicine for the household, because we knew that while they would willingly "take drugs," they could not be driven to "take exercise." The family bowels were lazy, and this medicine will make them more so. This family wanted exercise; each member required a daily walk of five miles; but they *had no time for walking*; hence they were compelled to take time for the sickness that the constipation caused. Three-quarters of humanity suffer from constipation and its octopian results; three-fourths of these three-fourths would be cured by a daily walk of five miles and cultivation of the habit of regular daily evacuations at the same hour, and not one-hundredth of these three-fourths will take this little trouble to cure themselves. It is left then only for the doctor to give drugs and charge for them, when it is in the power of the individual to save both his health and his money.

A Good Example from France.

It would be a good thing if every municipality in Pennsylvania, and in fact throughout the whole country, would follow the example set for us by a provincial town in France, where the mayor was recently suspended from his functions because no sanitary measure had been adopted at the outbreak of an epidemic to prevent the propagation of the disease, which was allowed to spread among the population for more than ten days before any attempt was made to comply with the advice of the medical man in charge, and with the instructions of the government looking towards the restriction of the disease. The responsibility of the mayor or burgess or chief authority of any aggregation of individuals is frightfully great in the face of an epidemic, and such action as this recorded from France would, if generally resorted to, cause the head of the government to recognize and feel his responsibility, and act in accordance therewith.

Eating Raw Beef.

"I am eating raw fresh beef, and like the taste of it. Is there any known present or prospective harm in doing so?"

"Through the daily newspapers at that time I learned that the attending physicians to Secretary of War John A. Rawlins, under President Johnson, prescribed raw fresh beef for Rawlins for several months before he died. I could not learn his complaint. From what disease was Rawlins suffering that his physicians should give him raw beef for food?"

"Is it generally considered that raw fresh beef is more easily digested than cooked beef?"

"It seems to me that my stomach digests raw beef much better than cooked beef, the same as it does raw oysters, raw eggs, etc."

So writes a subscriber from the State of Washington, and in reply we would strongly advise him to stop eating raw beef. We do not know anything about General Rawlins's disease, but we do know that, in the light of modern science, uncooked beef ought not to be eaten. It is not generally considered as digestible as well-cooked beef, and animals are subject to diseases that may be transmitted to human beings, unless the germs of the disease are destroyed by the heat of cooking. Raw eggs and raw oysters are good; they are not subject to the diseases of the cow.—ED.

Raw Eggs.

We do not believe that the nutritive value of raw eggs is properly appreciated by the public at large. There is probably nothing so extremely nutritious, so easily digested, and so rapidly absorbed as the albumen or white of a raw egg. For those not very robust, whose appetite is not extra good, and whose digestive powers are somewhat enfeebled, an occasional raw egg, swallowed whole, would prove most wholesome. Dr. Ely, of Rochester, has been recently calling attention to the very great benefit that he has derived in the treatment of disease by the use of raw eggs. Some of his patients have taken as many as fifteen, twenty-five, and even thirty-five raw eggs in the course of twenty-four hours, and have kept this up for months. One of his patients took 3000 eggs in one year; another one 5475 eggs. Of course, we do not mean to say that eggs should be taken to the exclusion of all other nourishment, but we do believe that they would prove most extremely beneficial in very many instances.

Adulteration of Beer.

Some time since we published a clipping from an exchange reciting a number of drugs that this Journal claimed were used as adulterants of beer. This publication has brought us a communication, which we publish with pleasure,—

“Under the caption of ‘Adulterated Beer,’ there was published in the February issue of *THE ANNALS OF HYGIENE* an extract from *Food*, which I presume to be a health journal, giving a list of adulterants alleged to be used in the manufacture of beer.

“The article is calculated to do great injury to an extensive industry in which millions of money are invested, and from which vast numbers of employes derive their support. The brewing of beer is recognized as a perfectly legitimate occupation by national, State, and municipal authorization, and from its production large revenues accrue to their respective treasuries. Many thousands of the inhabitants of our land regard the use of beer as a necessary addition to their creature comforts and happiness. Therefore, the keenest scrutiny of the details of its manufacture is desirable, and should be studied intelligently and without opposition from producers, if for no other reason than that it is an article used only *internally*. But criticism should be fair and far from misleading, and no bias because of a difference of views as to the moral questions entering into its manufacture be allowed to influence the judgment of the critic.

“For many years I have been engaged in the brewers’ supply business, and I have yet to learn that the articles named in the extract from *Food* are

employed in the making of beer, not only as adulterants, but for any manufacturing purpose whatever. Coriander seed is occasionally used, not as an adulterant, but as a harmless and pleasant flavoring. *Cocculus indicus*, capsicum, ginger, quassia, wormwood, calamus-root, carraway seed, copperas, cream of tartar, alum, carbonate of potash, oyster shells, *nux vomica*, picROTOXINE, and strychnine are assuredly not, nor ever have been, on any order I have received, and to my knowledge are not at all components of beer. Sulphuric acid is used, but only as a cleansing agent, not as an adulterant.

"It is, however, an open secret that there is in constant use by many brewers a dangerous chemical, the admitted effects of which are to impair the health and shorten the lives of the consumers of their beer. The reference is to salicylic acid, regarding which some years ago THE ANNALS OF HYGIENE published an exhaustive and instructive article on its use as a preservative, and I submit that the statements therein impressed on the public mind were doubtless beneficial in an eminent degree, and a republication thereof would be a public benefit at the present time.

"A. P."

Closets in Railway Carriages.

Too little attention has been paid to the real danger that exists from the closets in railroad cars as disseminators of disease. It is a fact that the germs of typhoid fever, for instance, will be in the body of an individual for some time before the disease itself develops. We can readily conceive that a person using the closet of a car in travelling could deposit these possibly just as the train happened to be crossing a stream, whereby the discharges from this one individual might be the means of carrying typhoid fever to many hundreds, and in this way explain the apparently mysterious outbreaks of some epidemics.

But to say nothing of specific disease, even the ordinary discharges from the bowels are dropped here, there, and everywhere along the road, and it is very easy for them to find their way into streams that may be used either by human beings or by cattle for drinking purposes. This little note has been suggested to us by reading that the Swiss government, during the cholera scare of 1893, issued an order that all railway cars should be provided with a receiver securely attached to the lower end of the soil-pipe, and that into this catch-basin at least two quarts of milk of lime were placed just before the train started, and when the destination was reached, a quantity of milk of lime equal to the quantity of the contents of the receiver was poured into it. These vessels were then emptied and thoroughly cleansed.

Immunity from a Second Attack of Contagious Disease.

It has been generally supposed that one attack of contagious disease confers upon the person an immunity from a second attack, and this immunity has generally been explained by assuming that the first attack of the disease has caused a modification of some condition of the body that was favorable for the development of the disease, and that because of this modification the disease could not occur a second time. Now, Dr. William Finder, of Troy, calls attention to a very interesting point in this connection. His observation has led him to believe that typhoid fever occurring after small-pox will destroy the protection that the body has enjoyed against this disease. He has known persons to have small-pox a second time after typhoid fever following the first attack. This is rather a new field, and one about which we do not know much, but it is a matter of considerable interest from a practical point of view.

Walking.

The late Dr. Dio Lewis, who was eminently original in all of his ideas, once said that he could write a whole book on "walking" in four words, and his four words were, *chin close to neck*. "Whoever carries the chin close to the neck is all right from top to toe and will walk well." Following out this idea, we have conceived the notion of writing a book on the cure of disease and preservation of health in one word of four letters, W A L K. Statistical evidence goes to show that of every 100 persons who consult a doctor only ten really require his services. The remaining ninety would get well without, or would die in spite of, his ministrations. For every death there are about five cases of sickness; in every 100 persons who consult the doctor twenty will die and eighty get well. These twenty will die no matter what may be done. If the remaining eighty would walk five miles on their way to the doctor, the majority of them would have no use for him when they reached his office. Humanity will not, but if it would, walk five miles daily, the majority of doctors' signs would disappear, and those remaining in business would have a hard time grubbing for a living.

Mucus a Bactericide.

The investigations of French scientists would seem to make us believe that the mucus taken from the inside of the nose possesses the power of destroying certain disease-germs. Trifling as this may seem at first sight, yet it has a most significant bearing. Nature plainly indicates in many ways that she desires us to breathe through the nose, and not through the mouth. We have already on many occasions adverted to this fact and given reasons therefor. Now in this power of the nasal mucus to destroy disease-germs we find an additional argument in favor of nose-breathing. The atmosphere, of course, that surrounds us, is filled with all kinds of germs. Breathing through the mouth they are carried directly into the lungs, and washed down, when we swallow, with the saliva into the stomach. But if the mouth be kept closed, and we breathe through the nose, these very germs will be destroyed by the mucus provided by nature to protect us against the inroad of these little enemies.

Removal of Garbage.

The best plan is for the town to do the work itself. It should provide, first, that only tightly-covered, easily-cleaned receptacles of approved pattern shall be used. These could be sold to property-holders at cost. By thus purchasing in quantities there would be quite a reduction to individuals, and easy handling of the garbage would be guaranteed. Properly there should be two garbage-pails for each household; they may be made in different sizes, to suit large or small families, and the owner, if he chooses, could have his name painted on them so as to insure the return of his own pails.

The city should also have its own garbage-wagons, teams, and employés, all under the management of the Board of Health. Works for the disposal or destruction of the garbage, or a dumping-ground, should also belong to the city. Here there should be an abundance of hot water provided for cleaning the garbage-pails. The city should be so divided into districts that one team could visit every household in a district twice a week or oftener during the hot months, and as often as found necessary during the winter. The wagon would start out loaded with clean empty pails, which would be substituted for the full pails found upon the

premises. When a load of full pails had been collected they would be taken to the dumping-place or disposal-works, emptied and left for cleaning, a load of clean empty pails being taken from the dumping-grounds for the next trip. With system and management it would be possible, if desirable, for each property-owner to always receive his own individual pails; and the trip of the garbage-wagon could be so arranged that it would call on a certain list of houses on a certain day or days of each week, so that householders would always know when to look for it.—*Ohio Monthly Sanitary Record*.

The Duty of Parents to Children.

While we cannot and do not hope for the fulfilment of our suggestion, yet, since it is the province of this Journal to suggest, we keep on doing so, hoping that we may thus somewhat, if only to a slight degree, mould human clay in the semblance of Hygeia. The particular suggestion now in mind is that parents who raise their children in crowded cities are doing an injustice to these little ones that it is impossible to characterize too strongly. Theory and science tell us that a strong, healthy man or woman cannot be made out of a city-bred boy, and biographical history corroborates theory and science.

We cannot recall many eminent persons who have not been country-bred; and we must not forget that a brilliant mind must be linked with a vigorous body that the greatest possibilities of this mind may be achieved.

Did any of our readers ever see the Republican candidate for governor of Pennsylvania, General Hastings; if not, take the first opportunity to look upon a magnificent specimen of physical manhood; then turn to his biography, and read that he was born and raised on a small farm in Clinton County.

Now turn to the pages of history and strive to find the record of one single *city dude* who has ever risen to eminence.

You cannot grow potatoes in rock, no more can you grow great men and women in crowded cities; nature ordains otherwise, and nature has her own way every time.

Cause and Effect.

In 1859, D. H. Jacques wrote a book in which he says, "We fear, in fact, that not one person in a hundred even gives the subject [of health] a thought. It does not surprise us, therefore, to hear the warmest praises bestowed upon a girl's school in one of our large cities, where the hours of study amount to *nine and a quarter daily*, and only *one* hour is given to exercise. What sort of wives and mothers do you think the pupils of that school will make?" The girls of 1859 are the wives and mothers of to-day, and any intelligent observer can read the answer to this question by simply looking about him.

We sat next to one of these girls in church recently; her good old grandmother had fifteen children, and lived to a ripe old age; her mother had five, and died this side of forty; she has had one, and this one nearly cost her her life. There is nothing bad about this girl; on the contrary, she has a sweet and lovable disposition; but fashionable society, tight-lacing, late hours, balls, parties, and their accessories, have sadly undermined the constitution that she should have inherited from her sturdy Irish ancestry. Unpopular as the fact may be, yet *fact* it is, that excessive mental culture, in girlhood, followed by fashionable society life in early womanhood, will render a woman utterly unfit for the sublime functions of maternity. This is a free country, and we can do as we choose; but we *must* make a choice; we *cannot* do both; it is impossible.

The Sanitary Chemist.

Dr. Vaughan, than whom none stands higher as an authority on sanitation, sketchily outlines the duties and responsibilities of the sanitary chemist. The sanitary expert stands as a protector of the people against the countless sources of disease and infection, whose nature and methods of manifestation and dissemination are almost unknown to the public. Milk and water, the most valuable and the most innocent of products for the supply of human needs, may, under certain circumstances, become the active propagators of disease, and it is in the examination of these articles that the sanitary chemist finds his greatest responsibility. A word is said about the adulteration of food products in general, with the implication that greater care should be exercised by our law-makers and law-executors in the protection of the people against cheapened or dangerous articles for consumption.



Prevention of Introduction and Spread of Dangerous Diseases.—Special Meeting of the Michigan State Board of Health.

[Reported for the ANNALS OF HYGIENE by HENRY B. BAKER, M.D.]

A SPECIAL meeting of the State Board of Health was held at Lansing, Mich., October 27 and 28, 1893. The members present were: Hon. Frank Wells, President; Professor V. C. Vaughan, M.D., Professor Delos Fall, M.S., Samuel G. Milner, M.D., and Henry B. Baker, Secretary. The object of the meeting was "for the purpose of conference relative to the subject of immigrant inspection and disinfection of baggage." The execution of the law on this subject, so as to protect the health interests of the people from the importation of diseases without undue interference with transportation companies, is attended with many difficulties. Inasmuch as under this law the rules framed by the State Board of Health have the force of law, and must not only be sufficient to keep out disease, but under present circumstances probably must also withstand attack in every court in Michigan, and perhaps in the United States Courts, there is need for calm deliberation and earnest discussion of every point involved in order that the rules may prove useful and legal.

In the maintenance of the system of inspection, and in the measures taken under the law in case the execution of the law is opposed by railroad companies, as has been the case at Sault Ste. Marie, there are many questions constantly arising on which it seems desirable that the committee authorized to execute the system shall have the aid of the intelligent advice of all the members of the board after a full explanation and calm discussion of the details of the work.

There is also need for such preparation, discussion, and formulation by the full board of the evidence of the necessity for each rule that it shall be made to appear, not only to the State Board of Health, but to a court or jury, that each is a reasonable rule.

The foregoing are the apparent reasons for a special meeting confined to the prevention of the introduction of diseases, a subject which, though of very much less consequence than the ordinary work of the Board for the restriction and prevention of diseases which have actually broken out in many places within the State, seems sufficiently important to warrant the expense of an extra meeting, especially when we consider that through past action such dangerous communicable diseases are much less prevalent in Michigan than in any foreign country, and especially less than among those classes who come here as immigrants, and through such work at the border the ordinary work of the board within this State will be made much more effective.

One of the first questions put before the meeting by the president was whether or not the inspection and disinfection at the Michigan border

should be continued. Bearing upon this question, it was mentioned by the secretary that, although the immigration is now comparatively little and the winter season is approaching, cholera is still present in most European countries, and the diseases which cause most deaths in Michigan and which are most liable to be brought in by immigrants spread most in or following cold weather. These diseases are consumption, pneumonia, diphtheria, influenza, and scarlet fever. The board voted that the inspections and disinfections shall be continued, and that the officers of the board take measures to enforce the rules of this board by action in the proper courts.

Another question by the president was whether or not certificates of disinfection issued by the Canadian officials shall be accepted in lieu of disinfection at the Michigan border, when related to baggage destined to settle in Michigan. On this subject, the following resolutions, offered by Professor Vaughan, were adopted :

Resolved, That we instruct our inspectors at the Michigan border to accept and allow to pass all baggage bearing evidence from a properly-authorized Dominion or Provincial official that it has been disinfected in accordance with the rules of this board, unless there is reason to believe that such baggage has been infected since leaving the Canadian point of disinfection.

Resolved, That the above resolution be inserted in the Michigan rules under the head of "Exception 4."

The greatest danger of the introduction of disease into Michigan, at least so far as it is practicable to guard against it, is in the baggage of immigrants, for the reason that the quarantine and immigration inspections at our eastern seaboard are likely to stop any person actually sick with a dangerous communicable disease. This is particularly true relative to cholera. And in the case of cholera, the germ of the disease is so easily destroyed that there is reason to suppose that a method of disinfection which is not sufficient for some diseases might be sufficient protection against cholera. As a rule, baggage of immigrants coming through the port of New York is not disinfected,—no attempt is made at disinfection. For several months past that coming through the Dominion of Canada has been subjected to such disinfection as was considered by the Dominion quarantine officer to be sufficient to destroy the infection of cholera.

If the methods and practice of disinfection of the baggage and luggage of all immigrants at our eastern seaboard were such as to inspire confidence as sufficient protection against all dangerous diseases, Michigan, notwithstanding its position on the frontier and in the track of travel of most immigrants to this country, might rest content without maintaining a quarantine.

The hope has been that, seeing the demand of Michigan for better protection from those other diseases which experience has proved are in Michigan of more consequence than cholera, the quarantine officials on our eastern seaboard, or the United States officers, would take measures to so disinfect the baggage of all immigrants as to make it unnecessary to detain baggage for disinfection at the Michigan border. The United States government gave to its Marine Hospital Service an immense appropriation. Therefore it was hoped that it would establish a system of disinfection of

all baggage of all immigrants, as was voted to be desirable at the meeting last spring of delegates from the State and Provincial Boards of Health. The Dominion of Canada adopted the recommendation of the State and Provincial Boards so far as to provide steam disinfection of all baggage not injured by steam. This, with another provision which the Dominion officer thought sufficient to protect against cholera, has been in force at Quebec. Although the Michigan State Board of Health has endeavored to guard against the introduction of other diseases than cholera, and accordingly its rules have required and still require more than is done by the Dominion of Canada, yet, at this meeting of the board, the following resolution was presented by Professor Fall :

Resolved, That the action of the Dominion of Canada in disinfecting the baggage of all immigrants from Europe coming into its territory, and the establishment of its admirable appliances for this purpose, as described by Dr. Montizambert, at the recent meeting of the American Public Health Association at Chicago, meets our most hearty approval. We commend earnestly this action of Canada to the United States government, and hope that similar disinfecting plants be established by it at United States Atlantic ports, and that the baggage of all immigrants to this country be disinfected. We ask that this be done, not alone that we may be saved from threatened invasions of small-pox and cholera, but also that a vastly greater saving of lives may be effected from measles, diphtheria, scarlet fever, pneumonia, consumption, and other diseases which are of much more serious concern to the people of this country than cholera or small-pox.

This meeting having been called especially to consider the prevention of the introduction and spread of dangerous diseases in Michigan, and a full year's work having just been completed (the first quarantine rules in the present threatened epidemic having been issued September 6, 1892), Dr. Baker suggested a review of the principal lines of effort which have been put forth by this State Board of Health, and a proper recognition of the efforts which have been so remarkably effective in the preservation of the public health in Michigan. The first recommendation which issued from the office of the secretary of the board, a little more than one year ago, was a plea for such a thorough cleaning up throughout the State, with especial reference to water-supply and the disposal of excreta, that if cholera gained an entrance it should not find the conditions favorable to its spread. An important method, many times recommended by this State board, was the house-to-house inspection followed by the abatement of all nuisances found. Another line of work, in which the local health officers co-operate with the State board, is the surveillance of immigrants in order to be prepared for any dangerous disease which might be brought by them or by their baggage. This has been possible through the notices supplied to the State board by United States immigration officers, and by inspectors at the Michigan border; and although it has cost the office of the State board much labor, it is believed that it has been worth what it has cost.

The effect of the extra sanitary work in Michigan was at first very marked, and on the whole has been worthy of note. During the first quarter, in which the extra work was unusual,—being the last quarter of 1892,—the sickness statistics showed a remarkable lessening throughout the

entire list of diseases. This was mentioned in the published proceedings of this board, January 13, 1893. During the first quarter of 1893, the sickness statistics show that small-pox, cholera morbus, and scarlet fever were more than usually prevalent, but that many diseases, including consumption, which is the most dangerous disease of all, were less than usually prevalent. During the second quarter of 1893, the statistics show that scarlet fever and diphtheria were more than usually prevalent, and a few diseases were less than usually prevalent. During the third quarter of 1893, the statistics show that a few diseases, including consumption, were less than usually prevalent in Michigan, and that "no disease was more than usually prevalent." Thus, on the whole, notwithstanding the great immigration and the threatening of cholera and other diseases from abroad, there has been less sickness than usual, entire freedom from cholera, and nearly complete freedom from small-pox.

Dr. Baker offered, as a substitute for the resolution offered by Professor Fall, preambles and resolutions as follows:

WHEREAS, Michigan has been remarkably favored by comparative immunity from dangerous diseases during the past year, while cholera has been and still is prevalent in most European countries, and small-pox and other dangerous diseases also have been and small-pox still is prevalent in some of the United States, and

WHEREAS, It is believed that this comparative immunity from disease in Michigan has been largely due to enlightened efforts by sanitary officials, governments, corporations, and individuals, not only in Michigan, but in our neighboring Dominion of Canada, in the States eastward of Michigan, in the United States government, and in foreign countries, and

WHEREAS, This board deems it wise to recognize these facts, to govern our future action accordingly, and to commend those agencies which tend towards the welfare of our own people; therefore,

Resolved, That the Michigan State Board of Health commends the action of all those individuals, corporations, communities, and sanitary officials in Michigan who have wisely done what was practicable to be done towards the prevention of the introduction or spread of disease in our midst, whether such action was sanitary surveillance of immigrants, sanitary inspections of premises, abatement of nuisances, or the prompt restriction of a dangerous disease.

Resolved, That the action of the government of the Dominion of Canada, in providing for the disinfection of the baggage of all immigrants, is worthy of mention and commendation; that the action of the Grand Trunk Railroad of Canada, in disinfecting all immigrants' baggage carried by that railroad destined to settle in Michigan in accordance with the rules of this board, is especially worthy of mention and of hearty commendation; that the action of the Canadian Pacific Railway, in disinfecting at Detroit, and also for a time at Sault Ste. Marie, all such baggage destined to settle in Michigan, is also to be warmly commended, and it is regretted that such commendation cannot properly be extended to its branches in the upper peninsula of Michigan.

Resolved, That the quarantine officials on our eastern seaboard are to be commended for their apparent success in keeping out persons sick with

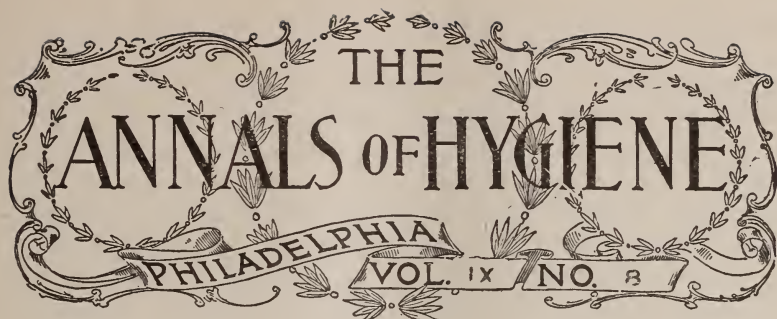
cholera, and that the United States authorities are to be commended for the inauguration of systems of disinfection of immigrants' baggage at the foreign ports of departure.

Resolved, That this board warmly endorses, as it has heretofore earnestly advocated, the plan for the disinfection of all baggage of all immigrants at all times, and for other diseases than cholera, as it was recently unanimously voted by the Sanitary Section of the Pan-American Medical Congress at Washington.

Resolved, That although sanitary measures have been and are increasing in efficiency, and the winter season is now approaching, yet cholera-infection centres are scattered throughout Europe, and there is still danger of that disease reaching this country, and many of the communicable diseases most dangerous in Michigan are constantly liable to be brought in by immigrants, therefore this board expresses the hope that all will continue to act for the exclusion of disease, and for the restriction of any dangerous disease within our borders,—several of these diseases being of vastly more consequence than cholera.

The resolutions offered by Dr. Baker were not supported. The resolution offered by Professor Fall was adopted.

At this meeting the secretary read a paper on "Defects in the Present Quarantine Law considered from a Social Science Stand-point." He thought it none too early, while the work under the law was fresh in mind, to study the facts and reasons why some of the plans of the present law were defective, with the view of formulating amendments in time to have them well considered, discussed, and perfected before the hurry incident to a meeting of the Legislature shall make such work impossible. As a starting-point, he read a proposed new section of law. One point in his paper was agreed to by the president, but no formal action was taken on the subject at this meeting.



COMMUNICATIONS.

Sanitary House-Drainage.

BY GEORGE S. HUGHES,

Chief Inspector of Plumbing of the Philadelphia Board of Health.



THE subject of house-drainage is one of great importance. It is the object of this article to define as clearly as possible how sewer-gas and drain-air may be prevented from entering a building, thereby reducing to a minimum the possibility of spreading zymotic disease through this source.

State and municipal governments have enacted laws authorizing their respective boards of health to adopt and promulgate suitable rules and regulations governing the construction of plumbing and house-drainage. This has brought about a marked improvement in construction, character of material, fixtures, etc., but, notwithstanding legislation on these matters, considerable responsibility rests with the plumber who has charge of the work.

The first essential consideration in designing a system of drainage is the protection of health. It is therefore of the utmost importance that the plumber should be a master of his craft; he should be able to read a drawing, and in order to do this intelligently should be able to make one; he should be sufficiently educated in arithmetic to make proper calculation as to grades, capacity of tanks, pipes, etc., also some knowledge of philosophy as to atmospheric pressure, vacuums, weight of water, heat, etc.; this knowledge is positively necessary for the construction of a suc-

cessful system of drainage, also that it may be imparted to the apprentice, that he in turn may become a competent mechanic.

The system in vogue at the present time, and which is conceded by scientists generally to be as correct as possible, in view of the present scientific knowledge, is the location of a main or intercepting trap set at a point between the house and sewer on the line of drain, and provided with an air inlet-pipe on the house side of the seal, the drain being carried through the building, and terminating at the rear fixtures. A vertical pipe or pipes are extended from the main or horizontal drain to a convenient point above the highest part of the roof (care being taken not to have them open near window or air-shaft ventilating rooms), the fixtures are connected to these vertical or horizontal pipes, whichever may be the most convenient, by waste pipes, all pipes are so arranged that a current of pure air may circulate through all their parts, and each fixture is trapped separately. There are several matters, however, which require especial care on the part of the mechanic constructing such a system; first, the selection of perfect material, the proper grading and jointing of all pipes, providing for an ample water-supply for frequent and copious flushing, and the placing of traps, that their seals may be maintained, so that the gases or air generated in the pipes may not be emitted into the rooms. There are a number of conditions under which a trap-seal may be broken, the most common of which are siphonic action, evaporation, and capillary attraction. Siphonic action is caused when the air is exhausted on the sewer side of a trap by the discharge of upper fixtures, and the pressure of the atmosphere forces the water out, in order to regain its equilibrium; this may be prevented by the introduction of an anti-siphon pipe,—*i.e.*, a pipe of sufficient diameter to admit air rapidly at the crown of a trap, to prevent the forming of a vacuum, and connecting it with the vertical soil pipe, above the highest fixture, or extending it above the roof.

Capillary attraction may occur by reason of a thread, hair, or piece of lint becoming fast at the crotch of a trap entering the water-seal and over into the waste-pipe, the water being carried up and over by this means. Care should be taken in this respect to have the interior of the trap smooth, free from solder, or, in fact, anything which might cause this condition.

Evaporation of the water-seals of traps is, perhaps, a condition to which the least attention is paid, yet it is one to which we

cannot attach too much importance, for no doubt a number of trap-seals are broken in this way. When we take into consideration city houses which become vacant during the summer months, the country houses during their unoccupancy in winter months, houses made vacant by removals and left closed for indefinite periods, or the spare-rooms or guest-chambers in hotels, etc., which are only used occasionally, it will be seen at once that this is a most important matter. In all cases where houses or rooms are to become vacant for a time, the traps of fixtures should be sealed with oil or glycerin; of course, this duty would naturally devolve itself on the housekeeper, but as they as a rule know little or nothing about the taking care of a drainage system, it really becomes the duty of the plumber, who should be possessed of this knowledge to instruct them, and on the completion of a system he should take the occupant through the house, explain the system, impress him with the importance of frequent and copious flushing of pipes, the cleansing of fixtures, and the necessity of protecting trap-seals during the time the house or spare-rooms may be vacant from evaporation. He should at all times impart such information, so that this evil may be reduced to a minimum.

In conclusion, if pipes are properly laid, jointed, tested, ventilated, and flushed, fixtures properly trapped, and trap-seals maintained, the object of a drainage system appears to have been attained,—*i.e.*, carrying off the waste water and sewage of the house and preventing the ingress of noxious gases.

School Hygiene.¹

[CONCLUDED FROM PAGE 373.]

LIGHTING.



REAT pains should be taken to secure a well-lighted building. The school-house should stand alone, no other building being nearer than 60 feet, and, if very high, still more distant. The rooms should not be much over 33 feet by 21 feet in size. Window-space should equal one-fourth to one-fifth of the floor-space, placed on two sides of the room, and the windows should extend to the

¹ Addressed to School Directors, Controllers, and Trustees. Issued by the State Board of Health of Pennsylvania.

ceiling, while the lower sill should not be nearer than four feet from the floor. It is the rule that windows are much too small. Shades, if any are permitted, should have the roller at the bottom. Teachers should not be permitted to obstruct the windows with curtains, flowers, or any other objects.

To keep out heat, blinds on the *outside of the glass* are much the best. Pupils should never be required to face the light; and the light is best when it comes from behind and over the left shoulder.

Walls are best of light gray color; ceilings white. Dark paint or dark paper should never be used on the walls of school-rooms. It is best not to use paper at all. Black-boards should not be placed between windows, where pupils must face the light in reading from them.

Books with good paper and good print should be used, and no others. This applies to books of reference and supplementary readers, as well as to the books considered as the more regular text-books.

It would be well for directors and school trustees to have hanging on the walls of every school-room plain rules for the prevention of injuries to the eyesight.

RULES FOR CARE OF THE EYESIGHT.

Defects of vision have become so common among American school-children that it is imperative that every exertion be made to lessen them. Rules have been compiled by the State Board of Health, which will be sent free to all school boards requesting them. Ask for Circular No. 38, on Care of the Eye. It would be well to have them printed on card-board and hung in every school-room.

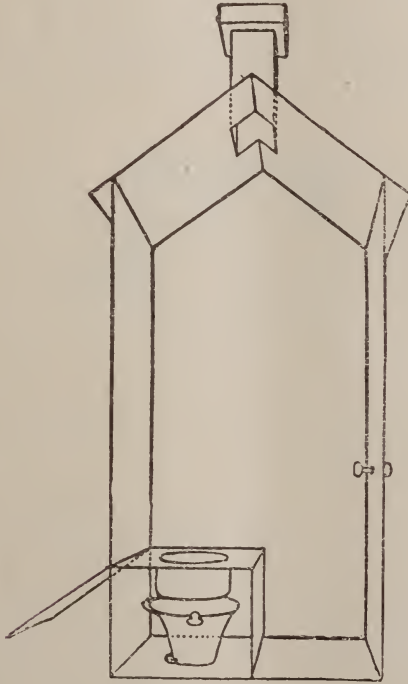
WATER-SUPPLY.

Growing boys and girls need much drinking-water; hence every school should have a good supply. In country places the well or spring should be at least 200 feet from the privy. The well should be cleaned out at the opening of each school term, and the purity of the water tested. Each child (or at least the children from one family) should have his own glass or tin cup for drinking purposes. In country places, a wash basin, and in towns a hydrant, but no towel or soap should be supplied the pupils. This last precaution is made necessary from the danger

of spreading contagious diseases where the same towels, etc., are used promiscuously.

DRAINAGE.

The privies should be absolutely distinct for each sex, “out of sight and out of mind” each from the other. There should be as little wood-work as possible about them, and they should be well ventilated and well lighted. In country places, some form of the earth closet should always be adopted in preference to the dangerous privy vault. Dry paths should lead to the closets, so that in damp weather pupils need not wet their feet in visiting



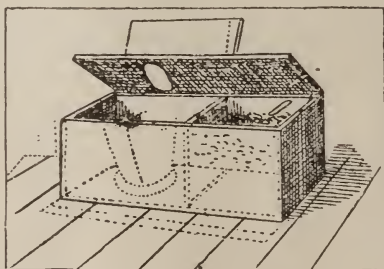
Convenient closet, pail system.

them. In towns, when the water-closet is used, they should be constructed in the best possible manner. The floors should be of slate or asphalt, because these absorb no moisture. The urinals should not be of metal or of stone, but of glazed ware, as this can be kept clean most easily. The hopper closet is much to be preferred to the basin closet. It is much better to place the closets

outside the school-building, rather than in the cellar, as in the latter there will always be some danger from foul gas, and they will need constant watching. Sewage from a school (as also from all other buildings) should always be purified before being thrown into a stream, in order to avoid the contamination of water-supplies. Human excreta are poisonous to human beings when again taken into the system; besides, they often contain the germs of fatal diseases, like typhoid fever, cholera, dysentery, etc., for which reasons care should always be taken to keep them from all water-supplies.

GENERAL CLEANLINESS OF PREMISES.

Every portion of school premises should be daily inspected by the teacher and kept in a cleanly condition. Special attention



Convenient form of earth closet for teacher's use. May be placed in any small room. It should be ventilated by means of a pipe leading to the chimney.

should be given to the cellar, urinals, and water-closets. The cellar should not be used to store litter in, should be frequently whitewashed, and, if need be, disinfected. The urinals and closets should be frequently disinfected, and the aim should be to permit no odor to arise from these places. Green vitriol, a pound to a pail of hot water, is an excellent disinfectant for such places. Neighboring streets, alleys, and premises should also be reported to the health officers whenever not in a healthful condition.

Every school-house should be thoroughly cleaned at the opening of each new year, and oftener if necessary.

SCHOOL FURNITURE.

The desks should be carefully selected and arranged, the following points being in mind:

- (1) The pupil should not sit facing the light.
- (2) The desks should be neither too high nor too low.
- (3) The top should slope to the pupil and not be flat.
- (4) The seat should be comfortable, with a support for the back, curved in to fit the hollow of the back, and not too far from the desk.

(5) In every room for say thirty to fifty pupils there should be three sizes of desks. Foot-rests should be supplied for those whose feet do not reach the floor.

The black-boards should be large, the surfaces dull, never varnished, and they should not be placed between windows. All wall maps and charts should be on a large scale, with large figures and letters. Teachers should be instructed to write in a bold hand, putting on plenty of chalk. The boards should be kept clean.

- (6) Every school-room should possess a reliable thermometer.

THE HOURS OF STUDY.

It is a general belief that American children are being overworked in the schools, and that their bodies are suffering from the confinement of the school-room. Possibly children would advance just as rapidly in their studies were they in school no more than *half as long each day as they now are*. The following schedule may be an aid in making school programmes: "Children 7 to 8 years old may be in school two hours a day; from 8 to 10 years old, three to three and a half hours; from 10 to 12, four to four and a half hours; 12 to 15 years, five to six hours; and 15 to 18 years old, seven to eight hours." This schedule suggests a fair average of school hours, and includes *all* the time that children of the indicated ages may profitably spend over their books. Night study is not needed unless to a very limited extent. More time than this will probably be at the expense of their physical health. Pupils should have their meals at regular hours. They should not be overtaxed in "preparing for examination."

Sound bodies are of so great importance to the rising generation that the attention of directors is especially called to this topic. In case of ungraded schools, the younger children should positively not be confined to the school-room as many hours as the older ones.

RECESSES.

There is a tendency to abolish all recess and noon periods. *This is a mistake, unless the hours at school are very much short-*

ened. The one-session plan is not to be commended for pupils unless 18 or 20 years of age. The objections to it are the children are too long over their books at one time, and the regular meal hours are interfered with.

PLAYGROUNDS.

Every rural school ought to have a good playground. It should be large, dry, and partly shaded. Trees ought not to be so near the school-house as to overshadow it and obstruct the light entering the windows. If, in cities, it is not otherwise possible to secure a playground, one should be made in the cellar, or even on the roof, or possibly in both places, one being assigned to the boys, the other to the girls, where both sexes are in the same school.

CONTAGIOUS DISEASES.

There is no longer any doubt that the contagious diseases of childhood are *largely spread through the instrumentality of the schools*. In cases of epidemics, it has been proved time and time again that, if the schools are closed, the epidemic dies out, or that mainly the children who attend the schools infected contract these diseases. Children who are suffering from consumption in a pronounced form should not be permitted to attend any school. In no case should either pupil or teacher spit upon the floor or into the hot-air registers.

All children should be vaccinated before being admitted to school. All pupils or teachers suffering from diphtheria, scarlet fever, small-pox, varioloid, measles, or contagious diseases of the eye or skin ought to be excluded from school until pronounced cured and innocuous to other children. When any of the above diseases are in a family, all the children of that family should be excluded from school so long as danger of communicating the disease exists. Teachers should be required to report all cases of contagious diseases in their schools to the health officer or burgess. When any of the above diseases are epidemic in a community, the schools ought to be closed until the disease subsides. The books which have been used by sick children will be infected, and should be burned. The following statement of periods of infectiousness, taken from Abel's "School Hygiene," may be of value:

PERIODS OF INFECTIOUSNESS OF CONTAGIOUS DISEASES.

Small-pox.—Six weeks from the commencement of the disease, if every scab has fallen off.

Chicken-pox.—Three weeks from the commencement of the disease, if every scab has fallen off.

Scarlet Fever.—Six weeks from the commencement of the disease, if the peeling has ceased and there is no sore nose.

Diphtheria.—Six weeks from the commencement of the disease, if sore throat and other signs of the disease have disappeared.

Measles.—Three weeks from the commencement of the disease, if all rash and the cough have ceased.

Mumps.—Three weeks from the commencement of the disease, if all swelling has subsided.

Typhus.—Four weeks from the commencement of the disease, if strength is re-established.

Typhoid.—Six weeks from the commencement of the disease, if strength is re-established.

Whooping-cough.—Six weeks from the commencement of the disease, if all cough has ceased.

Under judicious treatment the period of infectiousness may be considerably shortened, but *no child suffering as above should be admitted to any school after a shorter period of absence, and should be provided with a medical certificate that he or she is not liable to communicate the disease.*

LENGTH OF QUARANTINE.

Teachers or children *who have been exposed* to infection from any of the following diseases may safely be re-admitted to the school, if they remain in good health (and have taken proper means for disinfection), after the following periods of quarantine :

Diphtheria, 12 days ; scarlet fever, 14 days ; small-pox, 18 days ; measles, 18 days ; chicken-pox, 18 days ; mumps, 24 days ; whooping-cough, 21 days.

Adults may be re-admitted immediately, if they disinfect their clothes and persons.

No quarantine is necessary in case of exposure to typhoid fever.

The following rules, formulated by the State Board of Health of Wisconsin, we think ought to prevail throughout this State :

RULE 1.—No person infected with any contagious or infec-

tious disease, dangerous to public health, shall be admitted into any public or private school within the jurisdiction of this board.

RULE 2.—No parent, guardian, tutor, or other person having charge or control of any child or children shall allow or permit any such child or children to go from any building infected with scarlet fever, diphtheria, cholera, small-pox, or other contagious or infectious disease, dangerous to public health, to attend any public or private school within the jurisdiction of this board.

RULE 3.—No parent, guardian, tutor, or other persons within the jurisdiction of this board, having charge or control of any child or children, shall allow or permit such child or children to go from any house or building infected with scarlet fever, diphtheria, cholera, small-pox, or other contagious or infectious disease, to attend any public school, church, or place of amusement, or to travel in any public vehicle.

RULE 4.—No person within the jurisdiction of this board shall be allowed or permitted to go from any house or building infected with scarlet fever, diphtheria, cholera, small-pox, or other contagious diseases dangerous to the public health, to attend any public school, church, or place of amusement, or to travel in any public vehicle.

BLANKS FOR CONTAGIOUS DISEASES.

The blanks employed in the city of Easton seeming to the State board of health to be very complete, they are here reproduced and recommended to all school officers. They are used as follows :

Upon the development of a contagious or infectious disease in a family, the physician immediately fills out *Blank No. 1*, and places it in the hands of the Chief of Police, who is health officer of the city. The chief thereupon visits the family of the patient and secures the data for *Blank No. 2*, which, when filled out, is reported at the office of the Superintendent of Public Schools. Upon its receipt the superintendent fills out and issues *Blank No. 3*, which prevents any inmate of that house from school attendance until the attending physician files in the office of the superintendent a certificate that the children of said family can be readmitted to school without danger of conveying contagion. Upon the receipt of this last certificate the superintendent fills out and issues *Blank No. 4*.

(No. 3.)

SUPERINTENDENT'S OFFICE.

..... 189 . . .
 Teacher of School No . . .
 Room Building.
 Official notice has been received at this office, that a case of
 exists in the family of of which ,
 a pupil of your school, is a member.

Under the sanitary regulations of the district, the pupil herein named is to be debarred of school attendance until the attending physician files, in this office, a certificate declaring that said pupil can be re-admitted to school without danger of conveying contagion.

..... *Superintendent.*

(No. 4.)

SUPERINTENDENT'S OFFICE.

..... 189 . . .
 Teacher of School No . . .
 Room Building.
 The bearer , who, for sanitary reasons, has been denied the privilege of school attendance, is hereby re-admitted to school agreeably to the advice of the attending physician.
 *Superintendent.*

SUGGESTIONS TO COUNTY SUPERINTENDENTS.¹

In conclusion, we advise that the following important recommendations be addressed to the county superintendents of the State, who are urged to present them to the attention of every school district board, to the end that our schools be placed in good sanitary condition :

(1) To clean and perfect all sources of water-supply, and, where schools have no water-supply of their own, to furnish such.

(2) In the absence of a better system, to prepare the windows and transoms, so that ventilation can be had without causing drafts, and that all schools introduce improved ventilating systems as soon as possible.

(3) To place buildings in good repair, with tight floors, good roofs and underpinnings.

(4) To see that the grounds do not permit standing water, and to prepare gravel or board walks to keep the children's feet out of the mud.

¹ From Report of Wisconsin State Board of Health.

(5) Suitable closets for each of the sexes should be provided with every school-house. They should be situated far enough away to secure privacy, be kept in good repair, and cleaned and disinfected at least twice a month.

(6) The rooms should be so warmed as to maintain an even temperature, and all be kept comfortable; stoves and furniture should be safe and in good order.

(7) Rooms should not be overcrowded; not less than 15 square feet of floor-space and 215 cubic feet of air-space should ever be allowed to each pupil.

(8) Black-boards should not be placed between windows; the surface should be dead black, not glossy.

(9) The light should, if possible, be admitted from the rear, or rear and left of the pupil,—never from the front.

(10) Desks and seats of different heights should be furnished to suit the size and age of pupils.

SCHOOL HEALTH OFFICERS.

In the ideal State, each school will have its own health officer, who will look after the construction, warming, ventilating, and lighting of the school building. He will also examine each pupil at stated periods, and will have a general oversight of the sanitary condition of the school buildings and the health of each pupil. He may propose to boards sanitary rules, and give teachers instruction in hygiene, and may make suggestions as to proper text-books for use in the schools. It is earnestly urged upon boards of control that these health officers be selected and set to work at the earliest practicable moment.

CO-OPERATION OF PARENTS.

Some of the best sanitary results can only be obtained through the co-operation of parents. They need to be shown that their children should not attend school too young. They should start to school with fairly-developed and healthy bodies, for which parents are in large measure responsible. Children should be well fed, should be taught at home regular habits, and should sleep from eight to ten hours every night. Parents should care for the general health of their children and see that on holidays they have a chance to secure fresh air and exercise.

Hygienic Observances among Savage Tribes.

BY D. G. BRINTON, M.D., LL.D., D.SC.,

Professor of Archaeology in the University of Pennsylvania.



WHEN we speak of savage tribes, most persons represent to themselves disorganized hordes of lawless men, without social organization, definite morals, or fixed rules of life. This is, however, an error. Those who have studied most intimately the status of savagery, where it exists in its pure state,—that is, before it has been wilted and blighted by the air of civilization,—have always found tribes organized under clearly-defined laws, with social and ethical codes enforced with rigid severity, and with customs of courtesy and propriety as absolute as those at any court in Europe.

This extends also to the observances of those practices which they believe will prevent the attacks of disease and the arrival of premature death. True it is that many of their notions in this respect are ill-founded. But may we not say the same of not a few which prevail among ourselves?

The first motives which prompted the primitive man to seek for himself a shelter and to shield his body with some sort of clothing were to a certain extent hygienic. Physical comfort, the sense of bodily well-being, is the indication of perfect health, and this he found was largely secured by keeping the surface of the body dry and warm. According to some writers, the first clothing man ever used was a coating of mud and clay, with which he daubed his naked and hairless skin to protect it from the bites of insects and the burning rays of the sun, or the keen blasts of the wind. Shoes or sandals, and some sort of head-covering, both invented for strictly hygienic reasons, belong to some of the oldest and rudest styles of clothing. There are no finer water-proof upper garments than those manufactured by the Eskimos from the intestines of the seal and walrus; and the closely-woven ponchos of the Aymaras of Peru, from the hair of the llama and alpaca, are equally protective in the cold and wet valleys of the upper Andes. The development of clothing among savage tribes is very generally in direct proportion to their hygienic necessities.

The bifurcated lower garment, the breeches or pantaloons, to which even the highly-cultivated Romans of classical times did not attain, was invented by their northern and despised neighbors,—the Celts,—and, independently, on the American continent by the Eskimos.

Hygienic restrictions about food and drink were familiar and strictly respected by most tribes in a condition of savagery. We are apt to be entertained by travellers with tales of the gross gluttony and the unlimited drunkenness of the rude tribes they encounter; but such stories do not apply, or do but partially, to those primitive peoples who have escaped the depraving touch of European culture. The intoxicating liquor prepared from the fermented sap of the maguey plant was well known to the ancient Aztecs, before the arrival of Cortes; but its use was controlled by severe laws, unfailingly enforced. If a common man was seen drunk, he was publicly scourged; if one of the nobles appeared in this condition, for the first offence he was deprived of all his honorable positions, and for the second, he was executed. Surely, the prohibitionists of to-day are still behind their aboriginal antetypes in enthusiasm!

In other parts of the continent we frequently hear of like restrictions. The "training" which the young braves underwent when preparing for war or for an arduous hunt, was based upon careful abstinence from excess in food, drink, and sexual relations, and regulated exercise. Those who were not able, through physical or mental weakness, to endure these tests, were considered unequal to the task, and unworthy of its honors. We have accounts of this especially among the Iroquois. Catlin also tells in detail of similar customs among some Siouan tribes; and they were by no means exceptions.

Entire physical soundness was well understood and highly appreciated in aboriginal America, as in ancient Sparta. The admiration of it led in both countries to the custom of exposing to perish those infants which were born deformed or with some abnormality. The training of the children who were spared was always on the "hardening" plan, one popular in many quarters in our own day. The Eskimo mother will lay her babe a few days' old naked on the snow when the thermometer is at zero. There is not much to be wondered at that among them, while the births average seven to a woman, only three out of the seven survive to adult years. But these three will be marvels of vigor and endurance.

More than anywhere else the hygiene of savage life is noticeable in the laws respecting marriage. These are generally extremely minute and enforced with iron decision. Incest is almost everywhere the most abhorred of crimes. Close marriage of kins is forbidden by strict penalties. Blood is often traced back through six or seven generations, and no marriage within these lines allowed. It is not easy to speak positively of the origin of this law of "exogamous" marriages. Darwin thought the universal horror of incest to have arisen from the love of variety and the indifference engendered by the daily communion of children in a family. Others with more probability attribute it to early observation of the deleterious effects of such unions on the offspring; thus giving it a purely hygienic basis.

It must have been a similar opinion of unhealthy influence which in so many primitive peoples lays upon a woman the obligation to retirement during the menstrual flow. In nearly all American tribes, as among the ancient Jews, she was at such times "unclean," and anything that she touched was also defiled.

Personal cleanliness varies very much among savage peoples, as, for that manner, it does among those which are civilized. The houses and villages are, however, usually neat, the latrines are situated at a distance, and only in very low conditions do we find the refuse of the kitchen left to accumulate around the dwelling. Even in the rigorous climate of Greenland it is spoken of as a discreditable sign for the dejections to be seen close to the hut.

Thus we find that the observation of the laws of hygiene is not an acquisition of civilized man, but that the respect for them belongs to him as a species, and is manifested in his lowest varieties.

Death from Gluttony.

A boy, 15 years of age, living in London, spent his Easter holiday in Blackheath, where he ate thirty oranges, a whole cocoanut, and a mince pie, quenching his thirst with cider and various effervescent drinks. In the evening he had several cups of tea, and later some cake and lemonade. Before the dawn of the following day he was dead, and the coroner's jury brought in a verdict of "death from natural causes."

Notes on the Sanitary Condition of Mexico.¹

BY G. P. CONN, M.D.,
Concord, N. H.



HAT the reader may comprehend some of the various difficulties the hygienist has to encounter when seeking for information in a foreign land, I will quote from the writings of two of our celebrated authors whose graphic description expresses the conditions far better than I should be able to do for myself.

It matters not that the one is an artist and brings out in words the ideal language of the canvas, while the other presents the cold, hard facts of the business man. Both are true to nature, only the point of observation was different.

The artist and business man may ride together and share each other's woes and blessings, and yet the cool financial observations of the one will partake of but little of the enthusiasm of the other.

F. Hopkinson Smith, in his "White Umbrella in Mexico," says, it is "a land of white sunshine, redolent with flowers, a land of gay costumes, crumbling churches, and old convents, a land of kindly greetings, of extreme courtesy, of open, broad hospitality. It was more than enough to revel in an Italian sun, lighting up a semi-tropical land, to look up to white-capped peaks towering into the blue, to look down upon wind-swept plains encircled by ragged chains of mountains, to catch the sparkle of miniature cities, jewelled here and there in oases of olive and orange, and to realize that to-day, in its varied scenery, costumes, architecture, street life, canals crowded in flower-laden boats, market plazas thronged with gayly-dressed natives, faded church interiors, and abandoned convents, Mexico is the most marvelously picturesque country under the sun, a tropical Venice, a new Holy Land."

It has been said that Mexico is a land of altitudes. Her cities lie under a tropic sun, but their altitudes lift them to cooler and purer atmospheres, and make a veritable spring-time of even her summer days. The season in Mexico is all the year round ;

¹ Read before the New Hampshire Medical Society, 1894.

it never ends; the only difference between summer and winter is that it rains in the summer, and then only light showers.

The only information requisite, as to the weather, is: June to November, umbrellas for afternoon wear; December to May, the blue sky and the Republic of Mexico are *the only needed protection*.

William Elroy Curtice, in his "Capitals of Spanish America," says, "It wounds the pride of a Yankee tourist to discover that so little of our boasted civilization has lapped over into the borders, and that the historic halls of Montezuma are only spattered by the modern ideas which we exemplify. The native traveller still prefers his donkey to a railroad train, and carries his burden upon his back instead of using a wagon. Water is still peddled about the capital of Mexico in jars, and the native farmer uses a plough whose pattern is as old as that used in the days of Moses. Nowhere do ancient and modern customs come into such intimate contrast as in the City of Mexico. The people are highly civilized in spots. Beside the most novel and recent products of modern science one finds the rudest and crudest implements of antiquity. Types of four centuries can be seen in a single group in any of the plazas. Under the finest walls, with ceilings frescoed by Italian artists, and the walls covered with the rarest paintings, one finds a common bar-room, where native drinks are dealt out in gourds and the pinon stops to eat his tortillas. Women and men are seen carrying upon their heads enormous burdens through streets lighted by electricity, and stop to inquire, through telephone, where their load shall be delivered. In an old inquisition building, where the bones of Jews and heretics have been racked and roasted, is a medical college sustained by the government for the free education of all students whose attainments reach the standard of matriculation, and bones are now sawed asunder in the name of science instead of religion."

Such language represents some of the contrasts of a people inhabiting a country that was settled and conquered before the United States was known as the "land of the free." It presents an anomalous condition that must be kept in mind as we look upon the peculiarities it reflects when viewed from a hygienic stand-point. It is only when we consider this country, its people, and its peculiarities of climate that a Northern or Eastern man is enabled to satisfactorily solve in his own mind the problem of a good hygienic condition in Mexico.

While these quotations serve to give you some idea of the people and its climate, we must at the same time remember that in part it is the language of the enthusiastic artist, whose imagination was lighted up by the beauty of the scenery, while the other recites cold facts from the stand-point of a commission of investigation into possible commercial relations.

From a sanitary point of view we will consider the topography of the country. The contour of the surface is peculiar, for while the greater portion of it is of higher altitude, yet its topographical character is of such a nature that large areas have no natural drainage outlets. On the high tablelands, it is the rule rather than the exception that rivers of considerable size will empty into a lake having no visible outlet. Again, rivers of considerable size, after flowing along for miles much the same as we should expect in New England, will at once disappear by being absorbed by the earth, and will not appear again for long distances, when they will come to the surface and apparently having been reinforced by other streams, for the volume of water will be far greater than at the place where last visible.

It may here be remarked that the central portion of the Mexican Republic, and comprising nearly all except that portion lying directly adjacent to the Pacific Ocean or Gulf of California, on the west, and the Gulf of Mexico on the east, is higher than any part of the United States east of the Mississippi River except our highest mountains. The Mexican Central Railroad, which carries one from El Paso, Texas, to the City of Mexico, 1224 miles, has no point in its entire distance that is not more than 600 feet higher than our own Kearsarge Mountain, while there are considerable distances on this line where the rails are from 1000 to 2000 feet higher than Mount Washington. With such high altitude, one might suppose that the drainage of the city might be easily effected. Unfortunately this is not true, and I think no city in the world has encountered more difficulty or been to greater expense, and still its drainage system is incomplete.

The reasons for this are mainly the topography of the country to be drained. You may observe that I speak of it as a country instead of a city, which is true, as the city is located near the centre of a plain more than forty miles in extent, and the foot hills are plains extending still farther, so that the basin is more than 100 miles broad. This basin is completely surrounded by an unbroken chain of mountains, ranging from a few hundred to

more than 10,000 feet above the level of the city ; therefore, the natural watershed of this whole section empties into this valley and its numerous lakes, some of which are actually higher than portions of the city. These are held back by dikes, like the waters in some portions of Holland, and nothing but this fact, and that the average rainfall for this basin is much less than we have in the United States east of the Mississippi, prevents its being inundated a considerable portion of the time.

Occasional inundations have taken place, and this has been a potent factor in causing its people to try to solve the problem of how the city shall be drained. The city was inundated in 1553, in 1580, in 1607, and from 1629 to 1634—five years—it remained under water. With lakes almost within the city limits that are on a higher elevation than the streets, you will expect the ground water to be higher than the surface, and I believe it is allowed that the average for the year is less than four feet, although, until the dike was constructed around Lake Texcoco, the water came within about eighteen inches of the surface, and not infrequently found its way into the streets.

This surface water is impure, being discolored, and generally holding in solution large quantities of crude salts of soda.

The supply of water for the city comes from Chapultepec, and at this point I would add that not infrequently small mountains of porphyry seem to have been pushed up through on that plain, as well as in other parts of Mexico, undoubtedly by volcanic force, and generally good water is found somewhere in the fissures of this volcanic rock. The immense spring on Chapultepec is high enough for the water to find its way onto the city by gravity through an aqueduct constructed of stone and cement, supported on arches of the same material. There are two lines of aqueducts from this spring, which consist of open viaducts supported on arches, these arches being part of the way thirty or forty feet high. Some ten years ago iron pipes were laid in this viaduct to conduct the drinking-water and secure it from the dust and other impurities of the atmosphere. These iron pipes conduct only a part of the water, and lie in the bottom of the open viaduct partially or wholly covered by the water passing towards the city. This viaduct, being open, had to be levelled, and had gates to allow the water to be used at points along the way for irrigating purposes. These volcanic mountains are isolated, and generally not more than a mile or two in circumference at the base, and in shape

somewhat resembling the pinnacle at Hooksett. The original site of the city was on a small peninsula in the midst of a lagoon of salt water, and was found to be liable to be inundated whenever there was an extra rainfall.

We are informed by historical works that the original Aztec population were intensely religious and probably superstitious in character, and believed they were to migrate from place to place until they saw a sign which was to be to them significant of the place of their habitation. This sign was to be an eagle holding a serpent in its bill or talons, and resting upon a cactus. After nearly two centuries of migrating hither and thither through the country, much of the time fighting for their lives among their enemies, they came upon this sign in their imagination and founded the city on that spot. It is in latitude $19^{\circ} 25'$ north and longitude $99^{\circ} 5'$ west of Greenwich. I would add that this sign they sought for so long became the national emblem of the country.

An island was formed in 1466 by Montezuma the First, who had a dike constructed about seven and a half miles in length and sixty-five feet in thickness to hold back the waters of the lake. This island was formed in Lake Texcoco.

In 1519, Cortez captured the city, but was obliged to vacate in about seven years.

It is hardly necessary to remark that the city in its present condition is not considered a healthy one, having a very large death-rate.

In 1607, about the time of the settlement of Jamestown, a plan was considered to carry away the surplus waters so as to prevent inundation; but little or no thought was taken of making a sewer. Lake Zumpango being the highest of the six lakes, the canal through the Nochistongo cut was expected to carry away the surplus water which formerly had flown into the lake in which the city was situated, but it was not considered feasible to carry this cut deep enough to drain the lower lakes of the city. This cut, which was completed during that century, carried off the surplus water for a few weeks, when it was undermined and caved in. Repeated attempts have been made to open it, but they have not succeeded in carrying it down to its original level.

There are no fireplaces, furnaces, or stoves in the city, all cooking being done in the old-fashioned Dutch oven with a charcoal fire.

As a scavenger all through Mexico, the turkey-buzzard takes the first rank, as in our Southern States, and government imposes a fine on any one slaughtering them.

The Spanish moss or lichen grows on nearly all large trees, and reminds one of our Southern States. The eucalyptus grows in a thriving manner wherever it is planted.

The present canal and tunnel for the drainage of the city is a modification of Enrico Martinez's Nochistongo cut, and was planned by Captain Smith, of the American Engineer Corps, in 1849. The canal and tunnel when complete will be a little more than thirty miles in length, of which the tunnel represents nearly one-tenth. The location of the tunnel is under what is called the "saddle in the mountain," which represents the shortest distance through from side to side. The cut was commenced in 1879, or nearly forty years after it was first proposed, at the farthest extremity, and it is a portion of the tunnel.

Political agitations have been the bane of the country, and put a stop to the work. Little more was done until 1885, when the council of the city and the Federal government combined to consummate this important sanitary work. A commission was appointed who have had charge of the work, and who have directed its execution. A loan was contracted in London for about \$12,000,000, which has served to cover the cost up to the present time, and probably no trouble will be experienced in raising sufficient funds to complete the plan. A rough description of this work would be to describe it as an open ditch or canal, having a depth of from 15 to nearly 100 feet, and a width averaging 40 feet on top, with the ordinary slope of sides, capable of carrying away eighteen cubic metres per minute. The object is, first, to carry the sewerage from the city, and, second, the surplus waters which can be used to flush the canal. The latter will be very necessary, as the grade of the canal is only about one foot to the mile, being less than thirty-six feet in the whole distance. I use the word "surplus" waters for the reason that all portions of that plain are very productive when water is used for irrigating purposes, consequently it becomes necessary to obtain water at a certain depth in order not to destroy the basin or plain for agricultural pursuits. The work has been actively prosecuted since 1885, and it is hoped that it may be completed in 1894. Over 5000 men are employed in this work, and five immense dredgers, some of them nearly as large as those used on the Panama Canal.

The contract has been let to an English firm by the name of Pearsons & Son, who have bound themselves to complete the canal by the month of September, 1894. These contractors are carrying out the work of the canal in two different manners,—namely, by hand-work with centrifugal pumps to draw off the water which filters in the tunnel, and by means of the dredgers I have mentioned, which have a capacity for 3000 cubic metres of excavation per day, and which deposit the earth and water excavated at a distance of more than 200 metres from the centre of the canal. This is accomplished by means of the buckets of the dredgers like an elevator carrying earth and the water to a height of about sixty feet, where it empties into a chute, and the mud and water flow through the horizontal shafts which extend several feet beyond the sides of the canal. As the earth which has been excavated falls upon the sides of the canal, enough water falls with it, so that it becomes a solid bank, and in places where the canal passes through lakes, this earth is thrown up upon the sides, and becomes a dike to keep the water of the canal from flowing into the lakes. At the same time, flumes are constructed through this dike, where by raising a gate the surplus water and overflow of the lake can be run into the canal for the purpose of flushing.

In the construction of this canal twenty-three overhead structures are required, five of them being aqueducts to carry rivers, four are bridges for railroads, the rest being for main roads or private ways. These are all constructed of masonry, and some of them, especially just before we reach the tunnel, will be of great expense by reason of their perpendicular elevation. The tunnel commences where the depth of the canal is nearly eighty feet, and I understood the "saddle of the mountain," where the tunnel passes through, to be a little more than 300 feet above the level of the mason work of which the tunnel is constructed.

The streets in the city of Mexico are kept fairly clean, as a large force of men are employed to sweep the streets and remove the garbage. This is utilized by being carried away for fertilizing purposes.

The watering of the streets and plazas is done by men with buckets, or the old-fashioned watering pots. Generally you would see men with an old-fashioned wooden pail with a bail of the same material to which a short piece of rope would be at-

tached, which served to bring the water out of a ditch or cistern, when with a dexterous movement of the arms and wrists he would convert the whole pailful of water into a small shower to sprinkle the street.

I only saw one street-sprinkler while in the city, and that was used on the "Paseo de la Reforma," when the street was being reconstructed and macadamized, and I question if this did not belong to the contractor.

The prevailing method of constructing buildings is and has been to build around courts,—patios,—and as the building material is generally stone or cement,—the walls being of great thickness,—the rooms are frequently cold and cheerless.

Very little lumber enters into the construction of buildings, even the floors being generally of stone or clay.

Scarcely any chimneys are to be seen, and no fire is used except in cooking.

The climate, as described by Hopkinson Smith in the quotation which I read, is scarcely exaggerated, but were it not that a cloudless sky is present every day in the week from October to May, it would be dismal in the extreme, for at this altitude it all depends upon sunlight, as during a single night the temperature will fall to 40° F., and sometimes even lower. There is always great change between the temperature during the day and at night, but with this constant sunlight during every day in the winter, any one must be difficult to please who cannot enjoy its soft atmosphere.

The air is very dry, and one for a time suffers for thirst, but gradually we become accustomed to its effects, and afterwards do not mind or think much about it. This dry atmosphere, and the evaporation it occasions, is a potent factor in the sanitary condition of the city and country, as it extracts moisture from all inanimate substances very rapidly, therefore many things that if left to themselves in New England would become a decided nuisance, simply become a dried fibre or mass in Mexico that gives out no odor.

In regard to the possibilities of Mexico, it is but justice to say that progressive sanitary improvements may be found in almost every section, and it will not be long before one will find good drainage and good water in all large towns and cities, and I suspect it will not be very long before one will find the Yankee stove on duty in almost every well-regulated household,

and while these improvements will take away much of the charm and novelty of travelling through this unique and strange land, it will be the means of affording much comfort to the invalid and tourist.

I have heard this country compared with the old cities of Southern Europe, Asia, and Africa, and who knows how much they are the junior of some of those places. I cannot better illustrate my meaning than to use the following quotation, which I picked up in Mexico, but am not certain of the author's name.

“ World wrongly called the New : this clime was old
When first the Spaniard came, in search of gold :
Age after age its shadowy wings had spread,
And man was born, and gathered to the dead :
Cities arose, ruled, dwindled to decay ;
Empires were formed, then darkly swept away ;
Race followed race, like cloud-shades o'er the field,
The stranger still to strangers doomed to yield.
The last grand line that swayed these hills and waves,
Like Israel, wandered long 'mid wilds and caves,
Then, settling in their Canaan, cities reared,
Fair Science wooed, a milder God revered,
Till to invading Europe bowed their pride,
And pomp, art, power, with Montezuma, died.”

Ocular Hygiene.¹

BY WILLIAM H. WILDER, M.D.,

Chicago,

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Polyclinic ; Pathologist and Assistant Surgeon to the Illinois
Charitable Eye and Ear Infirmary, etc.



IT has been rightly said that “ignorance of the laws of health has conscripted more people for the grave than all the battle-fields of the world.” The study of hygiene has engaged the attention of some of the brightest minds, but it is only within recent times that the subject has been placed upon the scientific basis it deserves, by the marvellous discoveries of the causes of disease, and to-day we are beginning to see it exalted to its proper rank in the curricula of some of our medical institutions. It is my

¹ An address delivered before the North Central Illinois Medical Association.

purpose in this paper, which from the scope of the subject must necessarily be incomplete, to bring to your attention some of the most salient features of practical hygiene as it applies to the eye, which should be familiar to the general practitioner, care he never so little for any special knowledge of the principles of ophthalmology. He may be disinclined to burden his mind with the remembrance of the multiplicity of diseases to which the eye is subject, and may be inclined to regard them as insignificant when compared with the more extensive and imposing lesions of other organs, and may think that when he encounters them he can easily dispose of the case by transferring it to the ophthalmologist.

However indifferent he may feel in this matter, it is his duty to acquaint himself with some of the prominent causes that may lead to serious and sometimes irremediable mischief in the eye, in order that he may, perchance, prevent the impairment of that most important sense,—the sight. Statistics, as collected in the great census reports, and the reports of asylums and schools for the blind of this and other countries, show that from 50 per cent. to 60 per cent. of these unfortunates have lost their sight because of diseases that are preventable if the suggestions of modern scientific hygiene are practised.

Let us first consider a disease of the eye which, although not producing its evil effects so quickly as some others, produces them none the less surely, and furnishes a large percentage of the hopelessly blind, and a still larger percentage of cases whose future happiness and usefulness in the community are seriously compromised. This is trachoma, or granular conjunctivitis, the menace of barracks, schools, orphan asylums, jails, and other institutions where large numbers of people are commonly crowded together. Nor does it confine its insidious ravages to such places alone, but invades the private home as well, and may leave its blight upon every member of the family ere we are aware of its presence. We find in travelling eastward an increased number of cases of trachoma, until we track it to its home in Egypt, where every third person is afflicted with the disease. Therefore it bears the name of Egyptian ophthalmia, but, unfortunately for us, it thrives well enough on emigration, and takes well to its new home, the Egypt of the West, for its victims in Illinois are legion, and the wards of the Illinois Eye and Ear Infirmary are crowded with them. I dare say I am within reasonable bounds when I venture

the assertion that from 15 per cent. to 20 per cent. of the blind in this State owe their infirmity to this disease; and how many more there are to whom life is a burden because of the discomforts they constantly suffer from it.

Not infrequently the trouble begins with a most severe outbreak of the conjunctivitis, not unlike a purulent ophthalmia in its appearance, threatening immediate destruction to the eye; but such cases are, in one sense, the most fortunate, for the sufferer is prompted to seek medical aid at once, and can easily be impressed with the importance of systematic and regular treatment until he is cured of his malady before it has run on to the chronic and deforming stage. But far more frequently the disease assumes the insidious, chronic form from the start, deluding the patient with the idea that he has only a slight ailment, and eluding the perfunctory examination of the physician.

These are the cases that go on slowly but surely to the formation of dense cicatricial tissue in the conjunctiva with its consequent deformity of the lids, while acute outbreaks occur, to be followed by the development of pannus of the cornea, which, in turn, is aggravated and made more intense from the rubbing of this inflamed part by the roughened lids. Ulceration of the cornea with prolapse of the iris, and a resulting inflammation of the interior structure of the eye may be the natural sequels of such a trouble, while if these dire results do not appear, and the pannus clears up, the cornea is left with such a roughened surface as to seriously impair the vision.

I take it, we are all familiar with these conditions, and it is only necessary by enumerating them to call them to mind. The important question arises, Can this disease be prevented? It certainly can be if a knowledge of its nature exists, and due regard be paid to the conditions that govern its progress. Trachoma is distinctively a contagious affection, and, whether we believe or not, that the micro-organisms discovered by Sattler, Leber, Michel, and others, are the living cause of the disease, there can be no doubting the clinical testimony that its spread is dependent upon the transferring of a contagium from one eye to another. It is easy to understand, then, how the disease can be conveyed from person to person, through sponges, towels, handkerchiefs, and other things that are used in common in schools, orphan asylums, workshops, and homes, where rules of strict cleanliness and decency do not obtain.

It should be the duty of every practitioner to acquaint himself with the appearance of the disease, and to prevent the spread of it in a family or a community by preaching the gospel of cleanliness, and practising the doctrines of antiseptics.

A case discovered in a family should be quarantined, in a way, and all the other members should be cautioned against using any article, such as towels, handkerchiefs, or cloths, that have been used by the infected person, until they have been thoroughly cleansed by boiling. The other members of the family should also be examined to see whether or not any of them have contracted the disease, and here it is well enough to caution the physician to cleanse his hands thoroughly before examining other cases.

There is another disease the existence of which, in many cases, is an opprobrium to the medical profession under the present brilliant light of antiseptic midwifery and surgery. I refer to ophthalmia of the new-born, a disease which, according to Fuchs, causes 23.5 per cent. of all the blindness in the asylums of Europe, and which, according to observers in certain countries, is a still more prolific source of mischief, since in Switzerland 26.02 per cent. and in Germany 25.83 per cent. of the blind are victims of the malady.

Unfortunately, statistics of this kind are not so carefully collected in our country as they are abroad, and it is impossible to determine accurately how great are the ravages of this disease here, but there is reason for congratulation that public interest is being aroused about this matter, and that steps are being taken to prevent the spread of a malady that yearly increases the burden of the community and the State.

A few years ago, Dr. Howe, of Buffalo, presented this subject to the American Ophthalmological Society, calling attention to the fact that in this country blennorrhœa was increasing in a far greater ratio than the population. As a result, the Society appointed a committee to investigate the matter and verify, if possible, the statements that had been made. The committee investigated the different causes of blindness in the institutions of the blind and the almshouses of the State of New York, and their report¹ shows that ophthalmia neonatorum was the unquestionable cause of 14.51 per cent. of all the cases of blindness examined. It may seem to some of you that this note of alarm in regard to this dis-

ease is sounded too frequently, but we, who have the greatest opportunities of seeing these cases, realize the importance of it, and the alarm should be sounded loud and long until every practitioner and every midwife shall realize the importance of practising midwifery with due regard to modern scientific ideas of cleanliness, and of using that preventive measure that experience has proven to be of inestimable value. In silver nitrate, as shown by Credé, we have a remedy that certainly has prophylactic value in the large majority of cases; and when this is combined with careful cleansing of the genital parts of the mother at the beginning of labor, and the practice of aseptic manipulation on the part of the attendant, the number of these cases will be reduced to the insignificant few that might occur as the result of the infection of the child's eyes while *in utero*.

The physician needs no special skill to practise this method, which merely consists in dropping into the eyes of the infant two or three drops of a 2-per-cent. solution of silver nitrate, after the eyes have been cleansed with warm water. The only addition the accoucheur has to make to his obstetric outfit is a small vial of the solution and a dropper. What can be simpler? And yet what can be more productive of good results?

I think we appreciate fully enough the importance of strict quarantine in certain exanthematous diseases, such as scarlatina, measles, diphtheria, etc., as a means of prevention of the spread of these infections. However, it is well enough to bring to mind that these contagious diseases at times cause frightful ravages to the eyes, which might be prevented if more vigorous and effective methods of isolation of such cases could be enforced. A point, however, having a more practical bearing in this connection, is that these diseases frequently leave the system in such a condition that the nutrition of certain tissues is seriously altered, and there is a proneness of low grades of inflammation of the asthenic type. It has been the custom to speak of this condition as scrofulous, and the older writers recognize this acquired form as well as the hereditary form of scrofulosis. It is true that modern pathology is inclined to repudiate the term, but, for want of a better one, it may still be used to characterize the condition found most frequently in childhood, the essential features of which are chronic lymphadenitis and certain diseases of the skin and mucous membrane.

Now it is this condition that furnishes in children a peculiar

predisposition to the development of conjunctival and corneal troubles, such as follicular conjunctivitis and both conjunctivitis and keratitis of a phlyctenular character. Repeated attacks of these diseases may occur, and in the case of phlyctenular keratitis, with the development of more or less extensive ulceration, seriously endangering the cornea, and even the iris, while the resulting opacities may markedly affect the sight. Again, this scrofulous habit, whether inherited or acquired, may induce a chronic inflammation of the edge of the eyelids, known as blepharitis, a condition that may easily result in displacement of the eyelashes, incurving of the lids, and a train of symptoms on the part of the eye itself.

Furthermore, rhinitis, characterized by thickened mucous membrane and hypertrophied turbinated bodies, together with adenoid growths in the naso-pharynx, is common in this condition, and easily leads to obstruction of the tear-duct and its attendant evils, either by an extension upward of the inflammation, or by the formation of cicatricial tissue at its point of entrance into the nose.

Much can be done to prevent the development of this strumous condition in the child after severe and exhausting diseases, and the treatment of scarlatina, measles, diphtheria, whooping-cough, and other diseases should not be discontinued until the physician feels sure that the former healthy condition of the body has been restored. To accomplish this a course of tonics should be prescribed,—iron, arsenic, strychnia, and the hypophosphites, combined with cod-liver oil.

A liberal and nutritious dietary of proper food should be ordered, and tepid baths and exercise with plenty of fresh air should not be neglected. If practicable, a trip to the sea-shore will hasten recovery. Such treatment, practised in the stage of convalescence from these severe diseases until there are no longer evidences of enlarged glands, mucous inflammation, pasty complexion, or thickened joints, would keep many a child out of the hands of the oculist.

Frequently these phlyctenular inflammations show a tendency to recurrence even after the scrofulous taint has been eradicated, and experience has shown that many such cases are the result of the strain to which the patient subjects the eyes in endeavoring to overcome a refractive error.

When such an error, usually hypermetropia or hypermetropic

astigmatism, is corrected with appropriate glasses, the patient is promptly relieved, and the corneal trouble does not recur.

I cannot refrain from touching upon one point while on this subject of scrofula,—viz., inherited syphilis, which, by some, is half suspected of bearing some intimate relation to the former. One of the pronounced manifestations of congenital syphilitic taint is a severe inflammation of the interstitial portion of the cornea, of an obstinate nature and prolonged course, occurring usually in childhood or early youth, against which treatment oftentimes avails but little.

This may assume a very severe type and be complicated with inflammation of the deeper structures, as the iris and choroid.

Even if these escape, the opacity of the cornea that remains after the subsidence of the inflammation is often so great as to be a serious bar to useful vision.

In this condition preventive treatment is the only kind that can be relied upon; and here we can appreciate the force of the sage remark of Dr. Oliver Wendell Holmes in regard to "sending for a doctor," that "in many cases he should have been called a long time before the patient was born." Persons affected with syphilis should be advised against contracting marriage until several years have elapsed after the last symptoms of the disease were manifest and there is a reasonable evidence of cure.

There is a prevalent belief that short sight is strong sight, but, like many ideas widely believed, this is tinged with error.

Myopia, or short-sightedness, is a disease of civilization, and is on the increase in those countries that boast of the highest degrees of culture and education. This ocular trouble is fostered by the forcing process of education of the young that exists at the present time, and by the lack of attention to certain physiological and hygienic conditions. The course of study in our common schools is being increased every year, and the child is compelled to devote more time than formerly to mental work.

Myopia, *per se*, consists in an elongation of the eyeball, so that the rays of light which should be naturally focussed upon the retina are brought together in front of it, and the individual is compelled to bring objects that he wishes to see distinctly nearer him than he would if his eyes were normal. This elongation of the eyeball occurs because of some weakness at the thinnest part of the sclerotic,—viz., the posterior pole of the eye and the bulging out of this part because of the intra-ocular tension.

Anything that tends to produce congestion of the head favors this, by preventing to a certain extent the return flow of blood from the eyes, and thus altering the nutrition of the parts. Heredity also plays an important rôle in this connection, in that a tendency to weakness of the coats of the eye may be transmitted from parent to child.

The habit into which children so easily fall of bending over the desk or table when writing and reading is pernicious and should be corrected, as it certainly interferes with the circulation of the head, and therefore leads to congestion of the eyes. For the same reason children should not be allowed to crouch over a book held in the lap when they are reading, but should be taught to sit upright and hold the book before them.

School desks and seats should be so constructed that the child is compelled to sit erect, and the school-room should be so well lighted that the pupil will not have to strain his eyes at his work. For similar reasons the room should be properly heated and ventilated, as overheating and poor ventilation contribute to the impairment of the health and the development of any latent tendency to weak sight.

If the child gives evidence of short sight it should be examined by the physician, both with glasses and with ophthalmoscope, to determine whether the disease be stationary or progressive, and, if necessary, kept out of school for a time until any irritation that may be present subsides. At the same time, proper glasses should be prescribed, careful attention being paid to correcting any astigmatism that may exist.

Frequently school children complain of short sight and of being unable to see distant objects distinctly, when the real trouble is hypermetropia, or far sight, usually combined with astigmatism. Such children commonly manifest more signs of irritation than short-sighted persons, not infrequently suffering from headaches, nausea, neuralgia, and other neuroses that are relieved by wearing appropriate glasses.

No part of the subject of practical hygiene has a more direct bearing upon the welfare of the individual, mentally and physically, than dietetics, and so I touch upon this subject to point out that also in ocular hygiene the matter of diet is important. That the stuffing of children with inappropriate and non-assimilable food will have an effect upon the tissues of the eye, in inducing nutritional changes, is quite as evident as that such indiscretion would occasion disturbances elsewhere in the economy.

Over-feeding is often more deleterious than under-feeding, and, in fact, is sometimes synonymous with under-feeding. A man may be starving with his stomach full of food, and, worse than that, he may be undergoing slow poisoning from the circulation in his blood of some of the products of metabolism that result from over-eating. This is particularly true in regard to over-indulgence in meats, and other nitrogenous foods, which bring about a lithæmic condition, with all its consequences.

In later life this may cause eye-trouble because of the degeneration of vessels, and we are all familiar with the retinitis that often precedes or accompanies the manifestation of chronic Bright's disease or co-exists with some heart-lesion. So in certain cases, for much the same reason, we notice degenerative changes in the lens producing cataract, and even opacity of the cornea.

Rheumatic affections, so nearly related as to their pathogenesis with the gouty state, are a prolific cause of inflammation of the iris and ciliary body. Many of these conditions might be prevented if we were, from childhood, more temperate in our use of highly nitrogenous foods.

I have thus attempted to outline, in a superficial and disconnected way, it is true, a few of the more important matters relating to the hygiene of the eye; and it will be seen that, although this organ is a favorite field for special study, it is so intimately related to other parts of the organism that the same general rules of preventive treatment apply to it as apply to them; just as in therapeutic treatment it is often necessary to eradicate the constitutional taint before one can cure the local evil.

The Manufacture of Cripples.

A horrible disclosure has been made in Biskupitz, Austria, by the arrest of a gang of men who for some time have been engaged in crippling children for the begging trade. Several unfortunate children were found in the house with their legs and arms broken and bound in positions of deformity. One little girl had both eyes gouged out. Instruments which had been used in producing physical deformities were discovered in the cellar. After the children (who had been stolen) were sufficiently deformed they were sold to other persons for begging purposes.—*Medical Review.*

Dreams.

BY W. THORNTON PARKER, M.D.,
Groveland, Mass.

“To die ;—to sleep ;—
To sleep ! perchance to dream :—
Ay, there's the rub ;
For in that sleep of death what dreams may come,
When we have shuffled off this mortal coil,
Must give us pause.”

HAMLET.—*Act III, Scene 1.*



RECENT editorial in the *New York Medical Record* concerning “dreams” states that, “medical writers all allude to dreams as factors in disturbed sleep, and some curious attempts have been made to associate the character of the dreams with the pathological condition.” Reference to *Feuchtersleben's Medical Psychology*, published by the Sydenham Society in 1847, shows very conclusively that some medical writers at least consider that dreaming is always present in normal sleep.

“Dreaming is nothing more than the occupation of the mind in sleep with the pictorial world of fancy. As the closed or quiescent senses afford it no materials, the mind, ever active, must make use of the store which memory retains, but, as its motor influence is likewise organically impeded, it cannot independently dispose of the store.”

We can easily illustrate this. For instance, we enter our study, mind active, but body wearied. We throw ourselves upon a lounge in front of an open fire. The daylight dies, we sit gazing at the burning wood, thinking over plans and projects. We are resting. The heart-beat grows quieter, the muscular tension of active life is relaxed, a calm quiet settles over us. We are thinking, but as the body succumbs to the delights of rest, and finally yields to repose, the circulation within the brain diminishes, and the thoughts lulled by sleep intermingle in slow collision. We never sleep without dreaming any more than we live without thought. As we drive about in our morning rounds we dream while we are awake. We think composedly, we rest the mind just as the idle wheel of the air-motor goes on turning long after

the connection with the pump has been cut off. When we awake we are conscious of thoughts or imagery just vanishing,—be it the awakening by day or by night, the waking dream or the sleeping dream is just the same.

We see with other instruments than eyes. We hear, as it were, with other instruments than ears. There is such a thing as perception, as a knowledge, of presence or of action without actually seeing or hearing anything. And yet this acute, accurate perception depends upon no unreal or mysterious agency for its existence. It is explainable by the simplest of nature's laws. "We see, therefore, in sleep, on the physical side, vitality lowered in the organs of sense and motor nerves; on the physical side spontaneity checked in its manifestation for want of external images conducted to the brain through the sensitive nerves. The teleological import of dreaming seems to be that, during the relaxation of all the working powers of the body, it supplies the place of this useful motion by the play of the fancies, which often rise to emotions."

Kant said, "Without this wearying but salutary pain of dreams, sleep would be death."

It is self-evident that the understanding fettered in dreams can give no instruction to the understanding when unfettered.

"The truly religious man," says Rosenkranz, "will pay no regard to his dreams, however interesting they may be, even if they should really come to pass. If a man once pays attention to his dreams he is liable to become a slave to superstition."

Dreams may become of great importance, giving historical information which was wellnigh forgotten.

As when the sun sets, the countless stars, invisible in the daytime, appear on the dark ground of the firmament, so, at the call of fancy, the forgotten images of by-gone days rise up and show the mind its former shape. Sleep was meant for repose and rest and comfort. During sleep compensation was to be made for what had been expended.

When life is normal, unhappy dreams are rare; where real refreshing sleep is taking place, dreams are like pleasant thoughts amid happy surroundings.

Pain and sorrow come by day and continue in our thoughts by night, but often merciful repose smoothes out the wrinkles of trouble and care, and like the fond mother of our infancy lulls and soothes us into peaceful rest.

"The brain long ill-fed with blood will take an habitually gloomy view of everything. When the liver is upset, the brain is poisoned with toxic 'liver stuffs' and melancholy (literally 'black bile' in Greek) is the result."—Fothergill.

"The yellow gall that in your bosom floats, engenders all these melancholy thoughts."—Dryden.

"Talk of champagne," wrote Byron, "for clearing your thoughts! There is nothing like Epsom salts!"

We know very well that the mind is very decidedly influenced in waking moments by external as well as by internal disturbances.

We frequently hear it said "that man's breakfast disagreed with him" or "his coffee was not right this morning." The whole life of that man, for a day or week or longer, may be that switched off into undesirable avenues foreign to his normal wishes when in health. He suffers from day-dreaming,—he endures a "waking nightmare." Under such influences men disappear and leave distracted families in terrible suspense. Weeks or months later on they are found far away from home in a dazed, bewildered state, or, if restored to reason, the past experience is to them a perfect blank. They have been living in a waking dream, but, nevertheless, continuing the methodical details of ordinary existence.

To draw the line of demarcation between waking and sleeping, between dreaming and thinking, between rational and morbid thoughts, between sanity and insanity, is not always an easy task.

The professional definition of insanity is "the more or less prolonged departure from the modes of thinking and reasoning peculiar to the individual in a state of health."

We might add that dreaming is the more or less prolonged departure from the modes of thinking and reasoning peculiar to the individual in normal waking moments. Sleep is the restorer, but to most people signifies a disrobing and resting in a bed,—few comprehend how the toilers rest, or how, in war, soldiers sleep in the saddle or on the march, dreaming of home and far-away remembrances.

To illustrate another form in dreaming which appeals more forcibly to the superstitious, my grandfather lost the solid silver trimmings of his old-fashioned saddle. These could not be easily replaced, and he often wondered what had become of them. So

much did the loss of these trifles occupy his mind that one night he dreamed of them,—it seemed to be a vision. He was in the city of Richmond walking through a street he had never visited before. He saw near by a saddler's shop, and entering, found his long-lost saddle ornaments. Months after this he was in Richmond, and while going about the city came on this out-of-the-way street, and to his amazement saw the strange shop. He entered and asked the proprietor if he had any silver saddle ornaments, but to his disappointment the man declared he had never heard of such a thing before. Suddenly, however, the saddler remembered that a negro had brought to the shop some months before a lot of odds and ends, and making search in a box in another room he brought forth—to the astonishment of his visitor—the long-missing ornaments. Was this incident in consequence of a genuine dream or was it a vision?

In the old-fashioned days in the "Old Dominion" my grandfather spent much of his time in the saddle, and his professional journeyings took him many miles away from home. Virginian hospitality provided many places where he could spend the night unannounced. Overtaken by storm late one evening he rode up to the cheerful mansion of a friend, and, giving his horse to a servant, retired at once without announcing his presence.

He was awakened during the night by sounds of arriving carriages, the alighting of guests, the shouts of the servants, the flare of torches, and all the accompaniments to be expected upon the arrival of a large and distinguished company. Later on came the unmistakable sounds of banqueting, the clatter of dishes, the strains of sweet music, and, finally, the departure of the guests.

Next morning, while at breakfast, he spoke to those seated near him of the entertainment, and was astonished that they made no reference to it, neither did they seem to understand his remarks, and offered no explanation and avoided any conversation respecting it. What was this, a dream or a vision?

Richardson, in his admirable work on "Diseases of Modern Life," in commenting on symptoms of heart-failure, states that "whenever a man, who is actively engaged, dreams regularly of his work, whatever it may be, he received a first warning that he is doing too much, and that the excitement of his day is being perpetuated into the night."

If this be not remedied, sleep begins to fail and direct physical derangement succeeds, which demonstrates only too clearly that

organic mischief, long latent, is at last a developed fact. Sleep is a sign of health so long as conforming to the telluric changes, it fulfils its teleological purpose,—namely, compensation for what has been expended.

Sleep occurring when sickness, pain, or systemic irregularity, or abnormal conditions of any organ are present, is more or less influenced by such disturbance, and dreams of a troubled nature are almost certain to result.

The "Alpen Drucken," so much dreaded by Germans, illustrates the physical influence upon the mind in sleep, and yet life itself is but a dream, and all we classify as pleasure but imagery of the present.

The sincere inquirer into truth will be swayed by no prejudice. He will listen and judge with the constant apprehension of the frailty of mankind, assured that the wisest may err, and that the weakest may yield instruction.

What may seem to be remarkable and unexplainable can often be readily solved by giving the matter some thought.

The mind of man is truly wonderful in its operations, its great cords vibrate with the noblest and the meanest aspirations, with the plans of master minds and the play of grown-up children.

Is it to be wondered at that in our sleeping moments, when we float lazily down on the tide of sleep, that all sorts and kinds of thought in strange confusion pass through the ungoverned brain?

Stranger is it that oftentimes our dreams are so orderly, so wise, and so agreeable.

The article by Miss Calhins, in the *American Journal of Psychology*, to which the editorial in the record refers, contains many items of professional value. "Miss Calhins considers it very improbable that the train of thought in dreams is swifter than in waking life. If she is right, it destroys the credibility of a good many interesting anecdotes. Thus Napoleon is said to have dreamed of a journey, a siege, and a cannonading, and awoke while some explosion was still reverberating." I do not see where there is any conflict of opinion. Certainly our waking thoughts are, if anything, swifter than sleeping dreams, and yet we ourselves have repeatedly noticed that some simple act, some sound, will produce in our sleepy minds vivid ideas yet more or less confused. We must, to determine the truth of this assertion, measure thought and measure duration of sound, and duration of

time from the moment of sound to rehabilitation of mental activity.

Dr. Robinson, in a paper contributed to the *North American Review* of December, 1893, on "What dreams are made of," says, "In considering the raw material of dreams, we must take into account the unbroken current of ideas which passes through the sleeping brain, and which only reveals itself to the conscious eye when some disturbing element intervenes. We may compare it to an invisible and silent river flowing by without betraying its presence, save when there is a splash of a fish, or of a falling stone, or some foaming eddy where a rock breaks the smooth surface." If the question be asked, "What is the nature of this procession of dream-ideas, and from whence do they come?" the answer is, "They may consist of reproductions of any thought or circumstance which may have impressed the memory from earliest childhood. Nothing that the eyes have seen, or the ears have heard, or which has once passed the turnstile of one of the other senses, is ever let go. They may be, and most of them are, entered on the record without our knowledge, and they may remain there for a great part of a lifetime, without our having any suspicion of their presence, and quite beyond the reach of our powers of recollection; but for all that they are there, and come to light under appropriate conditions."

Dr. Robinson also refers to the idea, which has existed more or less commonly, viz., "*that dreaming only occurred at the moment when consciousness began to resume its sway.*" And agrees with the theory, which we have already advanced, that cerebral activity exists during the whole period of sleep, and that the vast majority of our dreams never come to our knowledge. On the other hand, we are continually meeting with people who inform us that they never dream. It might be safe to assume that such people do very little thinking while awake; and, although not actually stupid, live their lives in a mechanical sort of way. Such people probably suffer little and enjoy little; one hardly knows whether to pity or to envy them. This reminds us of the old quotation, "He that suffers most, wins most." He truly enjoys life most whose mental and bodily activities are reasonably employed. One of the great difficulties in coming to any understanding about dreams is that we know so little about thought itself. We cannot even understand or explain the phenomena of life, we know not whence it actually came or whither

it goes. All that we know has come to us by conjecture, or has been revealed to us in the shadowy traditions of religion. It is eminently proper for a man to make investigations as far as he is able, or within certain legitimate limits.

The conceit of man induces him to theorize or make superficial investigations of questions beyond human intellect. So much light has been allowed or extended to man, and he has been permitted to acquire so much of what is called, in this world, wisdom, he forgets that this human wisdom is but foolishness with that Being we call God. Man is so carried away in the admiration of the magnitude of his accomplishments, in learning, mechanics, and art, he is apt to lose sight of the fact that the spring cannot rise higher than its source.

Intoxicated with all this, he even fancies he can solve the questions which have been reserved for only divine interpretation. And the poverty of his resources, mentally at least, is to be witnessed in a thousand directions: for instance, he gazes up into the clear sky above him, and wisely conjectures that there must be an end with a something beyond.

And yet his human knowledge immediately discloses to him the fact that, wherever the end is to be found, there must of necessity be something beyond that,—in other words, there must be an end, and yet there cannot be an end. This very thought seems like a troubled dream, an impenetrable mystery, a perfect example of the limit which has been placed upon human intellect, a forcible reminder of the grandeur of the Almighty mind, which has created and which governs all things.

I remember standing with some prominent men, one of them a bishop of the church, at a railroad station, when a magnificent locomotive and train of cars came thundering into the station. Some one called attention to the superb mechanical perfection and genius which could create such a mighty power: yes, was the reply, and if all the intellect of the world were concentrated to make a lifeless mosquito move a limb, it would fail in imbecile weakness.

It seems probable, writes Darwin, that some actions which were at first performed consciously, have become through habit and association converted into reflex actions, and are now so firmly fixed and inherited that they are performed even when not of the least use

So, too, we have certain *thought action*. Subjects of all kinds

come forward for rehabilitation when neither sought for nor desired, just as we move our fingers in imitation of piano-playing when we are also busily engaged in *valueless* thought!

It has been found "that in about 50 per cent. the character of the dream was distinctly connected with some waking thought or suggestion, while in 40 per cent. some slight or vague suggestion existed."

Albert sets forth the following signs as the most approved:

Lively dreams are, in general, a sign of the excitement of nervous action.

Soft dreams are a sign of slight irritation of the brain; often in nervous fevers announcing the approach of a favorable crisis.

Frightful dreams are a sign of determination of blood to the head.

Dreams about fire are, in women, signs of an impending hæmorrhage.

Dreams about blood, and red objects, are signs of inflammatory conditions.

Dreams about rain and water are often signs of diseased mucous membranes and dropsy.

Dreams of distorted forms are frequently a sign of abdominal obstructions and disorders of the liver.

Dreams in which the patient sees any part of the body especially suffering, indicate disease in that part.

Dreams about death often precede apoplexy, which is connected with determination of blood to the head.

"Tell me not in mournful numbers
Life is but an empty dream;
For the soul is dead that slumbers,
And things are not what they seem."

LONGFELLOW.

Washing Underclothing in the Russian Army.

According to *Vratch* (No. 7, 1894), a small quantity of petroleum is added to the soap suds in which the underclothing of Russian soldiers is boiled. The clothes are whiter, are less injured by washing, and a considerable saving is made in soap. The same process is to be employed in the German military hospitals.

Some Unsuspected Dangers to Health.

BY LAWRENCE IRWELL,

Buffalo, N. Y.

AS if there were not already sufficient ills to which flesh is heir, a rage for discovering new ones seems to have set in. Were we to take notice of all that is written in these days of ultra-scientific research upon what may be termed "unsuspected dangers," we should exist in a condition of constant dread, and our lives would become a burden to us.

Nevertheless, it may be well to consider a few of the real, but little recognized, risks to which most of us are exposed.

Walking has generally been considered one of the most healthy forms of exercise, but it appears from a theory lately advanced by a French army doctor that the shock caused by the heel of the boot, or shoe, striking the ground is injurious to the nervous system. Dr. Colin thinks that the constant jar, slight as it is, has a harmful influence upon the spine and brain; and to this is due a great part of the fatigue consequent upon long walks. In the case of soldiers who have heavy arms and accoutrements to carry, severe headaches are often the result of marching long distances. Dr. Colin prescribes India-rubber heels as a preventive of this form of weariness.

This is bad news for men, but women have an additional cause for uneasiness, arising from the very ground upon which they tread. An examination of the dust and other accumulations on pavements has recently been made, and it has been ascertained that numbers of bacilli of a highly dangerous character are contained in these particles of earth and dirt. The Health Board of Orange, N. J., has lately suggested that a warning be issued to ladies to keep their dresses from trailing in the streets. This reform is suggested in order to prevent our lady friends taking the noxious micro-organisms to their homes. Unfortunately, however, the vehicles disturb the dust of the roads and, as a consequence, the bacilli lodge in the clothes of both sexes.

As if this source of danger were not sufficient, a Viennese scientist has lately made some experiments with grapes. After

rinsing the dust from the grapes by means of distilled water, he injected some of the mud—for that is what it had become—into three guinea-pigs. One of them died in two days from peritonitis; the other two also died, but only after lingering for more than a month. Upon examination the bodies showed tuberculosis, originating in the site of inoculation.

Writing of tuberculosis reminds one that during the month of May a large number of ex-Vice-President Morton's chickens were found to be afflicted with this disease, and were ordered to be destroyed. Although it is doubtful whether the complaint which affects fowls is communicable to mankind, yet it would be advisable to refrain from eating any bird that has not been exposed to 200° of heat.

The Berlin (Germany) Bureau of Sanitary Inspection has quite recently issued a warning against dried apples imported from America, upon the ground that they contain zinc and other matter injurious to health. The unfortunate inhabitants of the United States, however, have not yet been warned against eating the dried apples.

Men are quite as much exposed to unsuspected dangers as the fair sex. It is not uncommon to see a rash on the forehead of a man, whose face is otherwise entirely free from any outbreak. It has been ascertained that the glossy leather lining of the hat which goes against the forehead is often glazed with arsenic. This poison is absorbed by the skin and causes eczema. A hat containing a white "sweat-band"—as it is called—is almost certain to contain arsenic, and all glazed linings should be avoided. There is no reason why the linings of men's hats should not be made of silk, or some other soft undyed material.

Even children are not exempt from these little-known dangers, since it has been observed that the wearing of red stockings causes pustular eruptions of the legs and feet. A couple of years ago the board of health of the French city of Paris employed a chemical expert to ascertain whether the dyes coloring stockings contained poisonous matter. In his report the chemist states that all the many specimens submitted to him derived their red color from substances extracted from aniline and containing a large proportion of antimonious oxide. As children perspire freely, this matter becomes a solution and is absorbed by the pores. Professor Schutzenberger has no doubt that the pustular rashes on children's legs and feet were due to the wearing of red stockings.

The Paris Board of Health thereupon reported in favor of the interdiction for wearing apparel of dyes obtained from metallic preparations.

The risk of arsenical poisoning in our homes is very much greater than most people suppose. Not only is arsenic found in wall-papers, but it is also present in cretonnes and imitation Indian muslins in poisonous quantities. A poor specimen of cretonne has yielded an analysis of nineteen grains of white arsenic, and practically all cretonne contains some arsenic. Two to three grains of this drug, taken either through the lungs or the stomach, will cause death. It is quite a common occurrence to have sufficient of arsenicized cretonne and muslin in a room to give at least fifty people a fatal dose. The inhalation of arsenical dust produces congestion and inflammation of the mucous membranes, sore throat, a peculiar eruption of the skin, diarrhoea,—and eventually death.

It should be observed that brown, red, and black wall-papers and cretonnes are quite as dangerous as green and blue. Popular opinion upon this question is erroneous, as it is upon many other scientific subjects.

The thimble is occasionally a source of blood-poisoning ; two or three spots of copper-rust, colloquially, but incorrectly, called verdigris, upon the inside of one will quickly cause it. Steel thimbles, and those which are enamelled inside, are free from danger.

So long as dyes continue to be used in materials for ladies' dresses, cuts or scratches upon the hands of persons who sew should never be neglected.

Green and red candles should be avoided ; eight of the former often contain a grain of arsenious anhydride. The latter are usually colored with vermilion (red sulphide of mercury) and are also poisonous. People who wish to use candles upon a Christmas tree, or for any other purpose, should be satisfied with white ones.

A word of warning to ladies who have an inordinate love of bangles. When worn loose, they are unobjectionable from a scientific point of view, and are merely a remnant of the barbaric age when men, women, and children carried ornaments upon all parts of their bodies. They must never, however, be worn tight, as they compress the flesh and cause extreme inflammation. A dusky Kaffir girl in South Africa has been compelled to have one

of her arms amputated in consequence of inflammation caused by the use of tight bangles. To such an extent will fashion, even among savages, enslave the fair sex !

A German scientist, whose name I cannot recall, has drawn attention to the habit of kissing. At best this is not a very desirable practice, because there are over twenty kinds of bacilli which inhabit the human mouth. Putting out of the question the danger of the conveyance of such a trifling complaint as caries of the teeth, I would urge that the bacilli of both tuberculosis and diphtheria may be taken into the system by means of kissing. It is a habit much indulged in by monkeys, and one which men and women would do well to avoid.

I now turn to two very serious dangers which can hardly be classed as unsuspected, although the masses know little about them. I have not written anything about consumption because the newspapers and magazines have been full of such matter for a year or two past.

The flesh of the pig is not by any means wholesome food. It is least objectionable in the form of well-cooked ham or bacon. Fresh pork is not nutritious ; it takes five hours to digest ; it is a common cause of scrofula, dyspepsia, and constipation. It is difficult to find any reason for the use of pork as food, except its cheapness. The hog is one of the dirtiest feeders of the animal kingdom ; our food should consist of clean-feeding beasts, birds, and fishes, and we ought to avoid the flesh of carnivorous animals, because the majority of them contain parasites. I am assured by those who know that, however well a pig may be fed upon corn or other clean food, he would not hesitate to demolish rats should they come in his way. This condemns hog-flesh from a scientific point of view, but as people insist upon eating it, they should not forget the necessary precautions. Although the Federal government professes to inspect pork intended for exportation, there is not, I understand, any State in which pork for home consumption is examined, in order that the presence or absence of trichinæ may be determined.

What are trichinæ, and what is trichinosis ?

The trichina is a minute parasitic worm occurring in certain flesh-eating animals. Although some of the general encyclopædias state that it occurs in the ox, I have been unable to verify the assertion, which does not appear in such technical works as I have consulted. The female trichina spiralis is double the size of

the male, and is $\frac{3}{25}$ of an inch in length. She does not lay eggs, but produces viviparously some 1400 embryos, which bore through the wall of the intestines into the blood-vessels, and finally work their way into the muscles, within which they grow and become encysted with a sheath, this sheath eventually becoming calcareous. In these cysts or capsules the young trichinæ remain passive unless the flesh in which they are is eaten by some other animal, as by a hog devouring a rat, or a man eating a pig. In the alimentary canal of the new host the capsule is dissolved, the embryos are set free, after which they develop and become migratory. The migrations of the young forms from the food canal to other parts of the body of the host produce very serious disorders, which are often fatal.

Trichinosis is the name of the disease produced by the indigestion of food containing the worm *trichina spiralis* in large quantity.

The existence of this complaint had long been suspected, but it was not distinctly recognized as a specific malady until 1860.

In Germany epidemics of trichinosis were not infrequent until a microscopical examination of the diaphragm of each pig was required by law. The reason for the prevalence of this disease in Germany is that smoked but otherwise uncooked ham is a favorite dish. Thorough cooking—that is, exposure to 180° of heat (Fahrenheit)—will render meat infected with trichinosis absolutely innocuous.

No method of destroying the trichinæ after they have reached the muscles is known to science, nor has the exact time occupied in their migration from the intestines to the muscles been accurately fixed. But it probably takes from three to four weeks, consequently the doctor should be consulted the moment the disease is even suspected.

Glycerin is believed to be an antidote to trichinosis. Persons who are unwise enough to eat half-cooked pork can do themselves no injury by drinking some glycerin as soon as they have consumed this unwholesome dish, but it is impossible in the present state of our knowledge to guarantee immunity from trichinosis simply by the consumption of glycerin.

Typhoid fever is a common disorder of the bowels. It is caused by bacilli which are taken into the system in drinking-water or milk, or by breathing sewer gas containing these bacilli. It is most desirable to try to avoid coming in contact with sewer

gas, and all of us ought to make a practice of breathing through our nostrils and not through the mouth.

A discussion of the theory of biogenesis would be out of place here, but it must be clearly understood that neither typhoid fever nor any other complaint caused by any form of life (micro-organism) can, by any possibility, be spontaneous. In every instance such diseases are due to an already-existing source, and it is, therefore, most necessary to protect ourselves against the most common forms of danger. These are drinking-water and milk.

The filtration of water is, in its scientific use, a very good process ; but if a filter is not cleaned, or cannot be cleaned, it is worse than valueless,—it is an additional danger to health. The process of filtration will not remove the bacilli of any disease, and we must therefore resort to boiling our water. If boiled for half an hour, a moderate degree of safety will be insured ; to obtain absolute safety,—that is, to get rid of the poisonous alkaloids (ptomaines) produced by bacteria,—the water must be boiled for at least two hours. This is not practicable, I am informed, in most houses.

Milk is a frequent conveyer of disease. So much has been written upon this topic that little need be added here. The lactometer is an instrument for showing the specific gravity of milk ; it does this, and it does nothing else. Skimmed milk and water, carefully “doctored” with a certain butter-colorer, will, of course, deceive the lactometer as well as the eye. Skimmed milk may be suitable food for calves ; it is not good food for mankind. Many purveyors of milk put borax or boracic acid into the milk to make it keep. Either drug will do this, and either of them in quite small quantities will injure the digestive organs. If the presence of adulteration in milk is suspected, the city chemist should be communicated with, and, should the suspicions prove correct, an effort should be made to punish the criminal milkman—he is a criminal—with all the rigor of the law.

The chief pleasure arising from the study of the sciences is the acquisition of knowledge which cannot be derived in any other way. From time to time unpleasant truths are discovered, and many people then say, “Where ignorance is bliss ’tis folly to be wise.” Let it be remembered, however, that if due regard were paid to the teachings of science, the lives of numbers of persons—perhaps of the majority of the inhabitants of the globe—might be lengthened, to say nothing of the vast amount of suffering which might be alleviated.

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

A Query about Milk.

AS a firm believer in Nature, and as a firm believer that Nature is suggestive, we are impelled to make a query about milk. Medicine has its fashions and its fallacies, and we sometimes think that the estimation in which milk is held as an article of diet may be one of these fashions and fallacies.

Nature plainly indicates that she intends milk as the nourishment for the very young of a large proportion of animal life, but does she so clearly indicate that she intends milk as a nourishment for adult life?

It is only possible to procure milk for adult use by interfering with the laws and processes of nature. The intrauterine development of the calf is not the whole maternal process of the cow; the preparation of the milk-glands to make milk, and its subsequent production is equally part of this process or function. The cow makes milk, not for man, but for its calf, and when man wishes this milk, the life of the calf must be sacrificed in order that he may have it.

If Nature intended that milk should be used by the adult, would she not provide it naturally for such use? would not the cow give milk irrespective of its maternal function?

So much for the natural aspect of this question, which has been suggested to us, not as a theory alone, but as the result of practical experience. We do not know if all physicians have the

same experience, but we are constantly confronted with instances where milk does not seem to agree with the adult individual. To use their own expression, "It makes them bilious;" evidently they do not properly digest and assimilate it.

We would like to publish the views of our readers on this question, and we solicit a general expression of opinion.

The Review of Reviews.

IF there is one thing that is calculated more than another to give a busy man "nervous prostration," it is to reflect for a moment upon the limitless mass of periodical literature through which he must "wade" to keep respectably "posted" on current progress.

It was a happy thought of the founder of *The Review of Reviews*, when he conceived the idea of digesting this literary mass, and preparing therefrom an essence ready for easy assimilation. We have animal peptones for the overworked stomach; now we have a literary peptone for the exhausted brain. The busy physician, the overworked man of affairs, will find in this unique, comprehensive, readable periodical mental refreshment, rejuvenation, satisfaction, and contentment to be nowhere else secured.

Contentment.

ONE of the most sensible editorial expressions on the recent railroad strikes that we have read takes the ground that the spirit of unrest that is so characteristic of these days is due, in the main, to lack of contentment. We are entirely in sympathy with any one who is laudably ambitious for self-improvement and self-advancement; we firmly believe that every one has not only the right, but it is his duty, to better his worldly condition in every possible way. But, while striving for betterment, it is of paramount importance that we should aim to be contented with what we have. But, you may say, if contented with what we have, where is the incentive to betterment. To the well-balanced mind, to the thoughtful man, present contentment and ambition for the future are perfectly compatible. He who cultivates contentment with his present condition is much more capable of future advance-

ment than he who by fretting and dissatisfaction brings about an abnormal condition of his nervous system that is, in itself, antagonistic to his material prosperity. The history of our successful men of affairs reveals to us the spectacle of cheery, contented men, calmly and dispassionately striving, day by day, to better their condition; in their early days, before success had crowned their efforts, we did not find them fretting and fuming over their limited possessions; with what they had, they were, for the time being, satisfied and contented, but they were always full of the quiet determination to have more, and more they got.

Contentment is an absolutely necessary condition of physical health, and so is it, also, equally of financial health and success. The discontented man will never be a healthy, wealthy, or successful man. Contentment with his present standard of health need not debar a man from a determined effort to improve it, neither should contentment with his present worldly condition act as a barrier against an effort to improve it. Contentment and laudable ambition are compatible and they are essential to social welfare, and the sooner we all realize this fact the better will it be for all of us.

An Explanation of our Rapid Living.

WE would ask for more than passing attention to the concluding paragraph in the report of the last meeting of the Michigan State Board of Health, which we will publish in the September issue.

If it be true that there has been a decided decrease in the amount of carbonic acid in the atmosphere in the last fifty years, would it not seem possible to attribute the increased rapidity of human existence to this fact.

It is an established scientific dogma that oxygen supports, while carbonic acid destroys, animal life.

A candle burning in an atmosphere of pure oxygen will be soon consumed, but while burning it will produce an unusual brilliancy; it is burning "brilliantly fast," so to speak. By the gradual addition of carbonic acid, the brilliancy and rapidity of consumption of the candle will be gradually lessened.

As with the candle, so is it with human life. The life of an individual breathing an atmosphere surcharged with carbonic acid will be a slow, sluggish life, while, on the other hand, the

inhalation of pure oxygen gas immediately vivifies, intensifies and makes more rapid the molecular changes that constitute life.

Turn to Jules Verne's book, "Dr. Ox," for an interesting exposition of this scientific fact.

The train of thought fired in our mind by this report from Michigan is something like this.

First.—It is a self-evident fact that humanity thinks more rapidly, acts more rapidly, lives more rapidly to-day than it did fifty years ago. This fact suggests the query, "*What cause has resulted in this effect?*"

Secondly.—It is a fact that oxygen is the vivifying element of the atmosphere; nitrogen the diluent; and may it not be that carbonic acid is the *restraining* ingredient? The heart has nerves that give it power to act; it has, also, other nerves that restrain and regulate the force transmitted through the first. The driver has spurs and a whip to impel his horse onward, so also has he reins and a bridle to restrain and regulate the force created by the whip and the spurs.

In all well-regulated movements there is an impelling and a restraining influence, and a perfect relation between these two powers results in the perfection of whatever motion may be involved.

Let either of these powers be unduly effective and its influence must be felt in that particular direction.

Thirdly.—To apply this argument: If there is now less carbonic acid in the atmosphere than there has been in the past; if there is less of the *restraining* influence, then it would logically follow that the quickening, vitalizing, driving element would have greater power, because of lesser antagonism from the restraining element.

Fourthly.—If, then, the atmosphere of to-day contains a greater relative proportion of oxygen, of the driving element, would it not seem that we might find, in this fact, a material explanation of the more rapid living of human life that is characteristic of the times?

Clearly understand that this is only speculation, but this Michigan report has deeply impressed us, and we shall await the result of Professor Fall's investigations with the most lively interest.



Cremation in France.

The average number of cremations in France for the first three months of 1894 was ten a day, an increase of about twenty per cent. as compared with the same period of last year.

Nose-Bleed.

Hutchinson places patients with obstinate nose-bleed in the sitting posture and with the feet in a deep pail of water as hot as can be borne. He says this never fails to arrest the hæmorrhage.

Oranges and Alcohol.

It is asserted, upon whose authority we know not, that the craving for alcohol may be greatly diminished by the use of oranges eaten to the number of six to eight a day.

To Clean Stove-Pipe of Soot.

This can be done without taking down the pipe and imperiling the combination. Take about two pounds of strip zinc, and when you have a large bed of coals put in your zinc and open the draught in the chimney,—if this is done every three or four days the pipes will be effectually cleaned.

Flies and the Transmission of Disease.

During the epidemic of cholera at Hamburg, Dr. N. Simmonds examined flies captured in the post-mortem room at the time the bodies were open. In these flies numerous comma bacilli could be demonstrated. When the autopsies were concluded and the room washed the cholera bacilli could not be found. An attempt was made to find how long the cholera-germs were retained by the insects, and it was found that they disappeared in one hour and a half.

Death Following a Box on the Ears.

A German soldier was boxed on the ears several times by an officer for not being quick enough in obeying orders. He was soon after seized with headache, vertigo, and ringing in the ears, became comatose, and died within a few days. The autopsy showed congestion of the brain.

Telephonic Dress Reform.

In the offices of the Chicago telephone dress reform comes of necessity,—the managers have ordered that no dresses be worn that come within three inches of the floor, as skirts stir up a dust that impedes the working of delicate long-distance “phones.”

Convalescence from Scarlet Fever.

Many a child dies even after a mild attack of scarlet fever, and after the parents suppose all danger is well past. During the convalescence from this disease the safety of the child requires a prolonged confinement to the sick-chamber. Dr. Jacobi, of New York, than whom there is no better authority, says, “The child should be kept in bed for three or four weeks, and should not be permitted to leave the room for forty days.”—*State Board of Health of Maine.*

Preventive Inoculation for Cholera in India.

The method of preventive inoculation for cholera, worked out by M. Haffkine in the Pasteur Institute in Paris and applied extensively in India by the investigator himself, has been put to the test of actual experience near Calcutta. Dr. Simpson, the health officer, took special steps to make the inoculations made in the neighborhood of Calcutta to serve as tests of the efficacy of the method in man as severely scientific as possible. A telegram in the *Times* states that one of these tests has recently been completed. Of the 200 inhabitants of a native *bustee* (hamlet), 116 were inoculated with the protective vaccine. Not long afterwards an outbreak of the disease occurred in the hamlet; ten persons were affected, none of whom had been inoculated, and seven died. All those who had been inoculated remained free.

The Absorption of Odors by Milk.

Parville relates some interesting facts upon this subject. If a can of milk is placed near an open vessel containing turpentine, the smell of turpentine is soon communicated to the milk. The same result occurs as regards tobacco, paraffin, asafœtida, camphor, and many other strong-smelling substances. Milk should also be kept at a distance from every volatile substance, and milk which has stood in sick-chambers should never be drunk. The power of milk to disguise the taste of drugs—as potassium iodide, opium, salicylate, etc.—is well known.—*Deutsche medicinische Zeitung*.

Sewage Irrigation.

Dr. J. H. Stallard, in the *Pacific Medical Journal*, gives the following table, showing the condition of sewage irrigation in England, but it must be remembered that the English rainfall is large and continuous, and that the great value of land near large towns is an obstacle to its appropriation for irrigation purposes :

| Towns. | Popula- tion. | Acres. | Sewage per Acre. |
|-----------------------|------------------|--------|---------------------|
| Bedford | 4,000 | 130 | 8,000 |
| Birmingham | 620,000 | 1,220 | 13,000 |
| Blackburn | 116,000 | 700 | 5,000 |
| Binton | 46,000 | 430 | 10,000 |
| Crewe | 31,000 | 255 | 4,000 |
| Doncaster | 24,000 | 270 | 2,000 |
| Edinburgh | 270,000 | 333 | 33,000 |
| Kiddinsmith | 30,000 | 192 | 9,000 |
| Norwich | 95,000 | 500 | 8,000 |
| Nottingham | 240,000 | 650 | 15,000 |
| Warwick | 12,000 | 134 | 4,000 |
| Beddlington | 73,000 | 420 | 8,000 |
| | 1,357,000 | 5,234 | 119,000 |

Allowing 260 persons to each acre, there are furnished 10,000 gallons of sewage per acre daily. . . . If we attempt to estimate the volume of sewage by the population, we may reasonably calculate that one acre of land may be safely made to receive the sewage of 500 persons. In order to carry sewage twenty miles, a fall of fifty feet is required.

Earache.

Moisten a pellet of cotton with chloroform, and place in the bowl of a clay tobacco-pipe. Introduce the stem into the ear, and blow the fumes from the cotton by placing the lips over the bowl, previously covered with a clean handkerchief or cloth. The effect is magical.

Care of the Tooth-Brush.

The care of tooth-brushes is not sufficiently observed. In our city houses they stand in their cups or hang on their racks above the set toilet-bowls day and night, absorbing any disease-germs that may be floating about. They should be washed frequently—at least twice a week—in some antiseptic solution, strong salt and water or bicarbonate of soda and water being two good and readily-provided cleansers. Tooth-washes and pastes should also be kept carefully covered.—*Philadelphia Ledger*.

Sugar as a Food.

Some recent results, published by Dr. V. Harley in the proceedings of the Royal Society of Great Britain, bearing on the influence of sugar as food in the production of muscular work, are full of interest. The conclusions of his experiments, which were performed on himself with Mosso's ergograph, are as follows :

(1) Sugar when taken alone is a muscle food ; 500 grammes (seventeen and a half ounces) of sugar increased the amount of muscular work done on a fasting day from 61 to 76 per cent.

(2) The muscle-energy-producing effect of sugar is so great that 200 grammes (seven ounces) added to a small meal increased the total amount of work done from 6 to 30 per cent.

(3) That when sugar was added to a large meal it increased the total amount of work done from 8 to 16 per cent.

(4) That the work done during a period of eight hours can be increased from 22 to 36 per cent. by taking 250 grammes (eight and three-quarters ounces) of sugar.

(5) That when sugar is taken at 3.50 P.M., it not only obliterates the diurnal fall in the muscular power, which usually occurs at 5.30 P.M., but even causes an actual increase in the total amount of work done.

Officially Exempt.

Irate Citizen—"I want to make complaint against a man whose barn faces mine on the alley between Ham Street and Bone Avenue, near Lazarus Court."

Police Official—"What is the trouble?"

"He piles all kinds of rubbish out there. We could keep a clean alley if it wasn't for him. He mixes his ashes and garbage and throws it half the time over against my barn. I've talked to him about it time and again, and it doesn't do any good."

"What's his name?"

"Higgson."

"Higgson? Does he live on Ham Street?"

"Yes."

"In a big brown house?"

"Yes. That's the man. I want to enter a complaint against him. I want him prosecuted."

"My friend, you'd better go back home. Higgson's the health officer."—*Chicago Tribune*.

Contagion in Cholera.

Dr. Klemperer has been studying hard on that complicated question,—individual immunity. That some people get cholera and others in the same house or neighborhood escape is well known, and this rule holds good in a more or less degree with all zymotic diseases. It has been stated that the hydrochloric acid in the stomach destroyed the cholera-germ, but as a fact the acid is rendered inert by its action on albuminoids contained in that organ, and thus loses its power to destroy the microbes. After numerous experiments on animals, and a study of the intestines of persons dead of Asiatic cholera, the writer believes that the loss of intestinal epithelium is the cause of some people taking the disease while the others escape. If the epithelium is normal, the patient escapes. No injections into the intestine of guinea-pigs, rabbits, and dogs of choleraic matter ever produced the disease unless the intestinal epithelium was destroyed. Again, the cholera microbe injected into the blood never can be found in the intestine. M. Klemperer believes that the germs are killed by nucleinic acid which is secreted by the intestinal epithelium, and when there is an absence of the epithelium the microbes obtain a foothold.

Children of Drinkers.

The London correspondent of the *American Practitioner and News* writes that a distinguished specialist in children's diseases has carefully noted the difference between twelve families of drinkers and twelve families of temperate ones during a period of twelve years, with the result that he found the twelve drinking families produced in those years fifty-seven children, while the temperates were accountable for sixty-one. Of the drinkers twenty-five children died in the first week of life, as against six on the other side. The latter deaths were from weakness, while the former were attributable to weakness, convulsive attacks, or to œdema of the brain and membranes. To this cheerful record are added five who were idiots, five so stunted in growth as to be really dwarfs, five when older became epileptics, one, a boy, had grave chorea ending in idiocy, five more were diseased and deformed, and two of the epileptics became by inheritance drinkers. Ten, therefore, of this fifty-seven, only showed during life normal disposition and development of body and mind. On the parts of the temperates, as before stated, five died in the first week of weakness, while four in later years of childhood had curable nervous diseases. Two only showed inherited nervous defects. Thus fifty were normal, in every way sound in body and mind.

Food in the Future.

A writer in the *Contemporary Review*, discussing the probable future achievement of invention along certain main lines, asks the question, "Why should not vegetable foods which at present are only adapted to animals, like the cow, the sheep, and the horse, be reducible to a condition suitable to the human digestion and the human palate?" The chemical constituents of these vegetable foods, such as grass, are similar to those which we now consume in various existing foods, and they are adapted to the requirements of the human frame. It is only a question of digestion. It can hardly be, but that with the continued progress of organic chemistry and medical science some means will sooner or later be discovered of solving this problem. If the process can be brought to a cheap and working shape, the sources of our food-supply will be greatly enlarged, at a time, perhaps, when increasing population and a growing pressure in the struggle for existence will make such a result most opportune and welcome to the world.

The Climate of Southeastern Florida.

It is stated as a remarkable fact, says the *Medical Record*, in connection with the extension of the Jacksonville, St. Augustine and Indian River Railway southward to West Palm Beach, on Lake Worth, that, although most of the work was done in the period between April, 1893, and February, 1894,—the long subtropical summer of more than six months' duration forming the greater portion of it,—not a case of sunstroke or malaria occurred among the 1500 and more men employed daily during the progress of the work. Many of the laborers were unacclimated, being Italians imported from New York and Scandinavians from the West. The weather during the summer in this part of Florida is said to be pleasant and even exhilarating, the southeast trade-winds serving to moderate the heat to a great extent.

Sea Air and Mountain Air.

Sea air and mountain air, both being tonic, will probably improve the health that is already fairly good. Children almost invariably do well at the seaside, while mountain resorts are in general much less suitable for them. The same rule applies, though for different reasons, to the aged. Dyspepsia, especially if of hepatic origin, often does badly at the seaside, but well in the mountains. Skin-diseases, especially eczema, are often aggravated by sea air. It is not clear that mountain air has any effect upon them. Struma, in all its protean shapes, does notably better at the seaside than anywhere else. The bracing marine resorts should usually be chosen. The existence of rheumatism, cardiac disease, or renal disease is usually a sufficient reason for placing a veto on the mountains. Bronchitis and emphysema do badly in the mountains, but often well at the more sheltered marine resorts. Obstinate insomnia is a contraindication against both sea and mountain resorts, and calls usually for the sheltered inland resorts. Milder degrees of insomnia, however, are often much benefited both at the seaside and among the mountains. Hysteria does very badly in the mountains, and often not well at the seaside. Here, again, if any change be desired, the sheltered and moderately bracing inland resorts will probably be found to be most suitable. Incipient phthisis often does well both at the seaside and among the mountains, and it is one of the most difficult points in therapeutics to choose wisely between the two.

Without entering into this obscure question fully, we may safely say that if the phthisis be at all of a "strumous" type, sea air will be found most suitable; if of "catarrhal" origin, the moist and sedative marine resorts should be tried; and if quiescent and limited, in a constitution that is not neurotic, the mountains may have the first trial.—*Lancet*.

Brain-Work and Vitality.

As a factor in longevity, the *London Speaker* calls attention to the fact that those people who have been accustomed to the continued disciplinary use of their brains daily, and who have thus placed their nerve-power under a highly-developed condition of constitutional training, are enabled by these very means to escape the so-called early decay, and to avoid those alarming accidents to health, from which so many apparently healthy men succumb. People who use their brains and observe ordinary hygienic care of their bodies resist disease in the first place, and when they are actually ill, prolong their lives or recuperate sooner than do those who have lived less intellectual lives. Thus there is given a new force to the assertion "that you may kill a man with anxiety very quickly, but it is difficult to kill him with work."

"Whether the brain can actually give power to the muscles is not certain, though the enormous strength sometimes developed in a last rally looks very like it. That it can materially affect vitality is quite certain, and has been acknowledged by the experienced in all ages."

Special Exercise to Correct and Prevent Constipation.

Friction, rubbing, or massage over all parts of the abdomen two or three times per day by the patient himself, or less frequently by a good magnetic operator, will help to promote vital action of the bowels. If not convenient for the patient to walk or ride for exercise, he can secure the advantage of both in large degree by the following exercise, taken in his room :

Standing with the feet well apart, to broaden your base, bend or flex the lower limbs at the knees, and extend the same about twice a second, or 100 times a minute, for several minutes at a

time, three or four times a day, and at the same time twist or turn the body above the hips first to the right and then to the left as far as you well can, resting the hands upon the hips or allowing them to hang by your side. At each turn of the body towards the right or left you will bend the knees about three or four times. You thus use chiefly the flexors and extensors of the thighs and the rotating muscles of the trunk. The motion of the body is meanwhile up and down, and the motion of the chest and head is alternately to the right and left. To facilitate the turning of the body, the heel of the limb opposite the one on which you rest, as the body sways from side to side, may be raised so as to allow the limb to turn upon the ball or toe of the foot. To get the best effect of this exercise, the head must be kept well up, the shoulders back, and the spine erect during exercise. The bowels may generally be allowed to rise and fall with the body, but at times it is well to exercise the diaphragm by endeavoring to draw up beneath it the liver and viscera of the abdomen.—Dr. Dutton, in *Journal American Health Society*.

Treatment of Obesity.

Savill and Haid recommend the following treatment for pronounced obesity: The individual is restricted to a purely nitrogenous diet, consisting of one pound of cooked fish and one pound of lean meat per day, and a pint of hot water must be drunk at intervals of two hours. Aside from this no other article of diet whatever must be taken. The meat and fish may be taken at regular intervals as suits the case. Five or six pints of water should be taken during the day. The hypothesis on which this treatment rests is that the patient supplies the needful hydrocarbons, which are withheld from his diet, through absorption from his own body. The ingestion of the large quantities of hot water is likewise supposed to exert a beneficial influence in some unexplained manner. This should be continued even after the patient has returned to ordinary diet, from which, however, potatoes, and especially beer, are excluded. It is not unlikely that the large quantities of water tend to overcome the renal disturbances which often manifest themselves when an exclusive nitrogenous diet is adopted with the ingestion of the ordinary amount of water only.—*Lancet, of Pittsburg*.

The Nuisance of Flies, and How to Cure It.

Thousands of methods have from time to time been employed to rid us of one of the most fertile carriers of disease and infection,—the “house-fly,”—but he has defied us. Sweet peas have been suggested, but this creeper will not grow at all seasons, and refuses to thrive in those districts where flies are most abundant. Fly-papers are a boon and yet a danger, as their poisonous nature precludes their being left lying about where there are young children. A cold infusion of quassia wood treated with a trifle of molasses or treacle is not only cheap, easily procurable, and harmless to human life, but it will kill these marauders by the million. It has the disadvantage of strewing the floor with their carcasses.

Take this advice (*Indian Medical Record*): Expose a little oil of bay in a saucer on your window-sills, or coat your doors and windows with any color of paint you like containing as little as 4 per cent. of oil of bay, which is far from expensive, and can be had anywhere, *and not a single fly will enter your house.*—*Sanitarian.*

Hotel Hygiene.

At a recent meeting of the Société Normande d'Hygiène Pratique, M. Percepiéd read a paper on the transmission of infectious diseases in hotels, where the bedrooms are occupied in turn by invalids and healthy persons. (*New York Medical Journal.*) It is principally in reference to the watering-places or the winter resorts that the attention of physicians and of the public has been aroused, he says, and in a number of resorts the suggestions mentioned in his paper have been adopted and have given rise to reforms, still in their infancy, but destined to extend rapidly. It is a great mistake, in his opinion, to limit hygienic precautions to health resorts only; all hotels, whatever they may be, should have the same rigorous care. The condition of health of the people received at these hotels is not known, and granting that acute infectious diseases are relatively rare, it is certain that invalids with chronic diseases, such as tuberculosis, are frequent patrons, and the fact that the majority of the travellers remain only a short time cannot be brought forward as an argument. They have the right to remain as long as they please, and they also have the right to demand that all sanitary precautions shall have been taken in the rooms that they occupy. The subject under discussion applies only to travellers, although there is much to

he said with regard to hotel kitchens and lavatories, and, above all, to the condition of health of the cooks and the other employés who live there. M. Percepidé confined himself to saying that kitchens should be provided with draught flues, and be sufficiently well ventilated for the odors not to pervade the hotel. Infectious diseases are due to germs that are very unyielding and retain their virulence for a long time, and these germs may be in every part of a room that has been occupied by an invalid; in the bedding, as well as on the walls or on the floor. Knowledge of these facts imposes the necessity of modifications in order to render the rooms habitable and free from danger to those occupying them. First of all the room should afford air in proportion to the number of persons occupying it, and should be well ventilated and sunny, for the importance of sunlight and air as hygienic factors is well known. The walls should be hard-finished or coated with an impermeable paint which can be washed, and, so far as possible, all corners should be rounded to make them accessible to washing. Mouldings, unless rounded, should be discarded. Carpets should be rigorously prohibited, and a parquet floor which can be washed substituted, or a cover of linoleum of an artistic and pleasing design used. An advantage to be gained by this is the abolishing of the spaces which always exist between the boards of an ordinary wooden floor. If the traveller desires to be more comfortable, he can have a movable carpet or rug, on condition that after his departure it is beaten and passed through a disinfecting bath before it is used again. The same precautions should be taken with regard to carpets. In rooms that are not very much used a heavy linen covering can be substituted for carpets, which can be sent to the wash like clothing. For the same reason curtains should not be tolerated, except those that can be washed. White ones are preferred, as the monotony can be relieved with a border of embroidery in bright colors. Heavy materials, like plush and velvet, should never be used. The furniture should be very simple in design, so that it can be cleaned easily. Wooden furniture, wardrobes, bureaux, and toilet-tables should be varnished or waxed, or, if preferred, lacquered. Chairs should have caned bottoms. Thus it is possible to conform strictly to hygienic laws, and at the same time preserve an artistic appearance. Everywhere, where it is possible, brass or iron bedsteads should replace those of wood. Toilet articles, especially the glasses, should be washed every day with the greatest care. After the departure of

a patron they should be washed in an antiseptic solution, such as a half-per-cent. solution of corrosive sublimate, and the bedding, towels, etc., boiled in alkalinized water. With regard to the means of lighting hotels, electricity is to be preferred, although that is a question of secondary importance. The heating should be with wood, coal, or coke. After a room has been occupied by an invalid, all the bedding and other linen should be sent to the disinfecting bath, and the walls, boards, and furniture submitted to antiseptic washing and antiseptic spraying. These precautions should not only apply to the bedrooms, but extend to the different rooms that the patrons have used, although with less strictness. The curtains of the parlors, where they remain but a short time, do not require such rigorous treatment. Nevertheless, draperies should be avoided and carpets prohibited. The same precautions should be observed in the dining-room. Here particular care should be given to the washing of the glasses, the forks, and the spoons. The former, after each meal, should be washed in an antiseptic liquid, and afterwards well rinsed in clean water, and the latter in boiling water. The vestibules, halls, and stairways should be without carpets and should be wiped every morning with a cloth wet with an antiseptic liquid. The closets should be large and well ventilated, and have proper appliances for flushing. These precautions should extend to the rooms of the employés, where the sanitary conditions should be under the strictest surveillance. As soon as a case of sickness is discovered isolation should be practised in order to take the necessary precautions as regards disinfection. These are the measures, the author says, which should be resorted to at the present time, and failure to do so shows a culpable indifference. At first it may seem that these precautions would be a source of expense to the hotel-keepers, but the abolishing of curtains, carpets, and furniture covered with rich silks and velvets will prove economical for them in the end, and, if they are properly carried out, any danger of infection will nearly always be averted.—*Medical Record*.

Death as it is.

Perhaps the most common mistake of the lay mind (says Dr. Cyrus Edson) is the association of the dramatic with the conception of death. Nothing is more common than to hear from the pulpit pictures in words of excitement, of alarm, of terror, of the death-beds of those who have not lived religious lives ; yet, as a

rule, if these pictures are supposed to be those of the unfortunates at the moment of death, they are utterly false. In point of fact, 99 of every 100 human beings are unconscious for several hours before death comes to them; all the majesty of intellect, the tender beauty of thought or sympathy or charity, the very love for those for whom love has filled all waking thoughts, disappear. As a little baby just born into the world is but a little animal, so the sage, the philosopher, the hero, the statesman, he whose thoughts or deeds have writ themselves large in the history of the world, become but dying animals at the last, as life slowly takes leave of its last citadel, the heart, and what is has become what was. This is death!

What Cases Shall We Send to Colorado?

Dr. J. N. Hall (Texas Sanitarium): As this is quite a fair though slightly biased statement of the indications pointing to the high altitude of Colorado, it is deemed worthy of an extensive *résumé*.

(1) *Phthisis*.—(a) The great benefit is obtained only when sent in the incipient stage. (b) Those cases in which digestion is fair do the best. (c) Little advantage to fibroid phthisis.

(2) *Acute Pneumonia*.—Do badly if sent before resolution has occurred.

(3) *Emphysema*.—Is generally contraindicated of heights in general, and Colorado is no exception.

(4) *Chronic Bronchitis*.—Especially when bronchorrhœa is present, does splendidly.

(5) *Dyspnœa*.—Generally speaking, this symptom is really intensified by high altitudes anywhere.

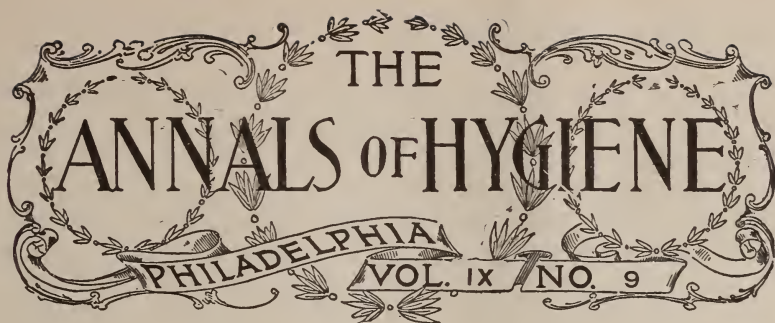
(6) *Pleurisy*.—Cases requiring tapping so commonly show tubercular trouble that they had better be sent as early as possible after the tapping, as prophylactic measure.

(7) *Asthmatics*.—Advantages to these patients as a class very questionable.

(8) *Disease of Circulatory Apparatus*.—High altitudes are a menace to all such subjects.

(9) *Chronic Malaria*.—These cases do well, as they will in any non-malarial climate.

(10) *Gynæcological and Nervous Cases*.—No advantage to these.—*American Practitioner and News*.



COMMUNICATIONS.

The Prevention of Communicable Diseases.¹

BY D. E. SULLIVAN, M.D.,

Concord, N. H.

“The death most to fear
Is the death we least dream of.”

—HORACE.

SUPERSTITION and ignorance of the plagues and pestilences of mediæval days have been dispelled by the revelations of brain and microscope of the nineteenth century. A new day has dawned, the horizon is brightened with the effulgence of the radiant sun.

May its moon never rise! Earth rejoices, and its inhabitants are exceeding glad. The biblical allotment to man of threescore and ten years has been verified,—life is regenerated. Tuberculosis is strangled in its very stronghold; no more shall grim cholera, death-bearing, wing its flight over the civilized world; diphtheria acknowledges Herod its superior in youthful destruction; scarlatina, with its lengthy train of gloomy attendants, has lost its mission; typhoid fever has been relegated to history. Roseate as this may seem, it is, nevertheless, practicable and accomplishable, but only by unremitting, unselfish, intelligent industry. The physician of to-day is not a mere dispenser of pills and potions, an authority of tongue and pulse, but is the one to whom State and citizen look for counsel in many an emergency. If a school-

¹ Read before the New Hampshire Medical Society, June, 1894.

house is to be constructed, an epidemic to be averted, a water-shed protected, a sewer extended, a gas-plant investigated, his opinion is generally sought and highly prized. Our responsibility then, both to ourselves and to the public, is beyond measure, and particularly so in its bearings on the subject under consideration. If we in our daily practice regarded every case of communicable disease as due to criminal causes and every death resulting as murder, for which some one was responsible, we would better appreciate the importance of contagion and infection. A full sense of its importance never will be attained until our medical colleges put these diseases on an equal footing with others. When the surgeon-editor Shrady is compelled to have his first case of measles diagnosticated for him by a washer-woman, a sad commentary is offered to our medical instruction. How many of us ever saw a case of measles during our studies prior to graduation? With the curriculum of many of our medical seats of learning, lengthened to four years, comes the realization of past neglect in sanitary matters. The medicine of to-day is preventive medicine, and it marks an epoch whose possibilities are limitless; the discovery of the toxins, and the immunity granted the system by the antitoxines in certain diseases, open up a mine for future exploration in which the searchers for knowledge must be workers. In "thoughts that breathe and words that burn" must the graduate leave his Alma Mater, knowing the whole value of "an ounce of prevention;" only by having a professor, equal in ability with his colleagues, with compulsory attendance on his lectures, and a satisfactory examination at their completion, can this be obtained. The greatest want in student life is clinical knowledge of the exanthemata and diphtheria, and students in our large cities should demand the opportunity to perfect themselves. This lack of early training is, to my mind, the great reason that physicians are so indifferent (shall I say ignorant?) in advising the public, and explains much of the conflicting experience between them and the local boards of health. The physician will report a case of diphtheria, and in three days ask to have the card removed from the house, as the child is better; the board says, Isolate for three weeks. Here is a decided difference of opinion, and sanitary improvement is badly damaged. Then he may say to the family, "There is no danger of spreading the disease; no reason why your house should not be disinfected, and you go to your ordinary business."

Public opinion is most necessary to establish and maintain

any laws ; and the very man who can mould that force aright is, maybe unwittingly, solidifying it in the wrong. The people are willing to bear privation, if they can be shown it is for their own benefit and the welfare of the community at large, but are restless under divided professional advice. We should not be obliged to contend with internal warfare,—our co-workers should be our heavy artillery. A special rule cannot be made for every case ; if some suffer under the workings of a general rule, it is far better than to feel that, through laxity of regulations, an epidemic has passed beyond control. Here I believe in centralization of power ; let the board of health be sole judge, and let the medical attendants give it their hearty co-operation. If this be accomplished, the first and greatest impediment has been removed.

EDUCATE THE PUBLIC.

The time will come, and in a few years, I trust, when simple instruction in plain words will be given in our public schools, teaching our young boys and girls the meaning of contagion and infection, and the absolute impossibility of contracting some diseases without coming in contact with their specific organism ; and explaining to them the reason of isolation and disinfection. Until the youth is educated, we must disseminate information to the public in circulars, telling them the nature and causes and precautions necessary in these diseases, citing instances at home to show how they are spread, and proving, if the first case be thoroughly isolated, there will be no second. Use the press freely,—there is no better way to reach the eye of the people. Court its favor ; its aid is most potent. Show to your city government the saving to it in restricting sickness and saving life by having a hospital set apart for the treatment of contagious diseases ; such an institution is wellnigh indispensable to every city in this State. There the strict isolation and quarantine of sufficiently long duration could be effectually carried out, and without this we can never hope to accomplish much.

SCHOOLS.

Deficient sunlight, bad ventilation, long hours of confinement,—oftentimes found in schools,—all tending to devitalize the system and make scholars easy victims to disease, coupled with the intimate intermingling at recreation and the close associations during studies, undoubtedly make schools hot-beds for the propagation of

germs. Many abuses and defects, now existing and serving as carriers of infection, might be remedied did we, as physicians, take a proper interest in them. How rare to find our profession duly represented on the school board in the cities, and yet what a tower of strength it would be !

Do we even show any particular concern about the street department, the water board, park commissioners, or school supervisors? If the air be poisoned by sewer-gas in tearing up streets, our drinking water polluted *ad nauseam*, insufficient breathing-places provided for the people, and consumptives graduated from our schools, are we not at fault in our indifference?

With very few exceptions, the law compelling children to be vaccinated before admission to school has been most loosely observed; to us who know the value of the discovery of the immortal Jenner, it is an unpardonable abuse of gifts. The enforcement of the law should be vested in the boards of health and should embrace all schools and teachers; there should be kept in the school a record certifying to the vaccination. Teachers should be trained to watch for the premonitory symptoms and early indications of communicable diseases, and instructed, when they thought necessary, to send pupils home for medical examination.

Shall pupils with pulmonary tuberculosis be allowed to continue at school? This question forces itself upon us, and, in the light of recent developments, would seem to demand a negative answer. If the school authorities were always informed of the presence and locality of contagious diseases, they might do much, by working in unison with the health officers, to limit their spread. The Concord Board of Health, in its report for 1893, recommended that a pupil, after suffering from small-pox, scarlet fever, diphtheria, measles, or whooping-cough, shall not be allowed to return to school, except on a certificate from the board of health that he has lost all power to communicate the disease, and that all infected articles have been disinfected to its satisfaction; or, after exposure to such diseases, shall not return to school except on a certificate from the board that the period of incubation, belonging to the disease to which he has been exposed, has passed.

The regulations of the Pennsylvania State Board of Health give the following as the length of quarantine for school children exposed to infection: Diphtheria, twelve days; scarlet fever, fourteen days; measles, eighteen days; whooping-cough, twenty-one days.

DRINKING WATER.

All must acknowledge the efficient propagation of typhoid fever by drinking water, and yet the dejecta of typhoid patients are at times allowed, undisinfected, to swell the volume of somebody's water supply. Better drink of the Ganges teeming with the putrescence of sacrificial filth offered to the Hindoo god than partake of such. "Am I my brother's keeper?" Shall we be branded with the curse of the Great Physician and man for wanton neglect in these cases? The great cry of to-day is, Purify our water! And shall we be deaf to the entreaty? Too much exactness cannot be required in the selection, examination, and protection of an article so universally used in such large quantities; the source and its surroundings, the opportunities for pollution, the water itself, the character of pipes used in its distribution, all necessitate extraordinary care. Impure water, even if it contain no specific germs, invites communicable diseases by rendering the system more vulnerable. London and Berlin, using filtered water, show the remarkably low death-rate from typhoid fever, of .49 per cent. and .42 per cent. respectively to their total death-rate. On the other hand, Chicago, drinking diluted sewerage a few years ago, had from this disease a death-rate of 6.72 per cent. to its total. Comment is unnecessary. The success of the filtering station at Lawrence, Mass., has proved that 90 per cent. of bacteria can be removed by that process. Whenever there is a doubt as to the purity of drinking water, it is certainly advisable to have it boiled before using.

INSPECTION OF PLUMBING.

The time has come when we should demand of our legislature a law requiring the inspection of plumbing; until a general law is enacted, our cities should invoke local legislation giving them protection in this matter, and, as physicians, we should lead, not follow. The public now fully understands the worth of approved work and realizes the dangers of defective work. Much of the so-called sanitary plumbing will not stand ordinary tests, and our health and lives are jeopardized thereby. Sewer gas, loaded with specific germs, has been the cause of diphtheria in many families, and oftentimes an obscure illness, if traced to its proper source, would be found due to imperfect pipes or unventilated traps. Let us see to it that, in much that scientific workmanship can pro-

vide, no home will be in grief or mourning because of this subtle, deadly poison.

EFFICIENT ISOLATION.

One of the most common mediums through which these affections are transmitted is the inefficiency of isolation. Some physicians are inclined, perhaps against their better judgment, to release their patients before the danger of communicability is passed; considerations of a personal or family nature should not allow a doctor, responsible to the public for the results of his acts, to be influenced in his determination, yet new cases often arise from these very causes. As bearing on the period of infectiousness, I will quote some authorities.

The Paris Academy of Medicine says: "For small-pox, scarlet fever, measles, and diphtheria, isolation should not be shorter than forty days."

The American Public Health Association, through a special committee, reports: "The affected individuals—*i.e.*, diphtheria—should be kept strictly isolated for not less than four weeks after the disappearance of all traces of the membrane."

The New Hampshire State Board of Health advises isolation of scarlatina for forty days.

Dr. Ransome, Owens College, Manchester, England, from researches, says: "Measles are infectious before eruption appears and communicable for thirty-one days after infection; scarlatina, in some cases, communicable before eruption and for six weeks after; diphtheria infectious from receipt of poison until complete recovery,—in ordinary cases, thirty-three days."

The Pennsylvania State Board of Health for 1890 reports the period, during which a person who has had diphtheria is in danger of conveying the contagion, to be from four to six weeks.

Medical officers of Schools' Association of England say: "Scarlet fever not less than six weeks, measles not less than three weeks, if desquamation have ceased; pertussis six weeks, if cough have stopped; diphtheria not less than three weeks, if all discharge have ceased as the time of safety in returning to school after suffering from these diseases."

Dr. Herman Biggs, pathologist to the New York City Board of Health, found the Loeffler bacillus in three cases five weeks after exudate had completely disappeared from the throat, and in another case, no membrane in the throat, he found the bacilli in

nasal discharges five weeks after apparent health. Thereupon, a rule was adopted to continue isolation until examination showed absence of the bacilli. Where it is possible, every local board of health in this State should have a pathologist and be guided by this action of the New York City Board. Why is there not something done to restrain the ravages of whooping-cough? Is it more harmless than measles? Last year Concord had a widespread epidemic of measles without a death in more than 400 cases; with a much smaller number of cases of whooping-cough, she had four deaths directly due to it and others, maybe, indirectly caused by it. Let us put this disease in the list of those reported and, by instructions to health officers and advice to the public, do all we can to check its spread.

ORGANIZATION.

The very commendable efforts now being made to establish some central, national health bureau, co-equal with the other departments serving as advisers to the president, should receive our substantial support. Why the government should not be as interested in saving life as in destroying it is difficult to comprehend; we spend fabulous sums of money in maintaining our army and navy, but comparatively little in instructing the people how to live better and longer. Are we interested enough to know how our own senators and representatives at Washington are on this question? A State association composed of the past and present members of the local boards of health is greatly to be desired; at their quarterly meetings timely topics could be discussed, mutual encouragement given and received, and the public, when advisable, informed of their doings through the press. Much good would inevitably come from such an organization and the general information on sanitary matters increased. Without an active, energetic, up-to-date local board you cannot do much; if there be no board, let the doctor constitute himself health officer and see that all precautions are observed. Heartily co-operate with the authorities in the exercise of their powers, and feel you are morally bound to make to them any suggestion you deem of benefit.

TUBERCULOSIS.

Hydra-headed tuberculosis, in its protean forms, annually drags numberless victims at its chariot-wheels; under its baneful

leadership follow the very flower and youth of the nation, galloping in their hectic career till they surrender to the mighty conqueror. Who can properly estimate the loss to home and country of this immense army scarcely placed on the field of active engagement? All will admit its infectiousness and the imperative need of prompt action. The people must be told in no uncertain tone that it is not hereditary; that it is caused by a vegetable micro-organism and is preventable; that just as they violate the laws of Nature, depress their physical resistance, and breathe in bacilli tuberculosis are they liable to die of consumption, even if no one in their family ever died of it. Cases should be reported to the board of health, not to have the house placarded, but to give the sufferer and his companions the benefit of scientific knowledge on the subject; to warn others of the danger of contracting it; to demand disinfection of sputa; an abundance of sunlight and fresh air; an inspection of house to determine the condition of cellar, soil, and surroundings. Statistics thus obtained cannot fail to be of great benefit in limiting the number of cases; when 10 per cent. of our population are annually dying of tuberculosis, can we do too much to lessen it? Milk may be the source of more diphtheria, scarlet fever, typhoid fever, and tuberculosis than we dream of, and to guard against this danger, milk-venders should be licensed, their dairies inspected, cows examined, and any case of sickness occurring in their families reported at once to the health officer. If death follow in any tubercular case, the house should be disinfected as in other infectious diseases.

DISPOSAL OF THE DEAD.

Unfortunately, the evil that many communicable diseases do lives after them; so, in death as in life, vigilance must be practised to escape their dangers. For this reason alone, if for no other, should undertakers be under the supervision of the health department and compelled to report to it at once every death from a contagious or infectious disease and all others within twenty-four hours following death. Recently I signed a death certificate nine days after the death, and seven days after the burial, of the person. The practice of indiscriminate disinterment of those dead of contagious diseases and the keeping of such bodies in the same tomb with other bodies through the winter months is fraught with peril, and should not be tolerated in an enlightened age. Whether cremation, the annihilator of all germs, shall supplant

the present mode of disposing of the dead rests largely in our hands. Many epidemics of deadly diseases have been traced to burial-grounds, and the necessity of a change may some day be imperative. No body should be disinterred without a written permit from the board of health, and, if immediate burial of those dead of contagious diseases cannot be secured, a separate tomb ought to be provided for them. When private funerals are ordered, there is now no difficulty in obtaining them; but if the body is to be sent to another town for burial, see that every requirement is fulfilled. It may yet be necessary to forbid the transportation of a body, liable to transmit disease, outside of the jurisdiction of the town where death occurred.

IN CONCLUSION.

Something must be done to lessen the danger of infection in travelling, passenger-cars and steamboats should, by law, be required to undergo a complete cleansing after each trip, and at frequent regular intervals disinfected by the fumes of sulphur or steam under pressure. Any person known to be suffering from a contagious disease, or any articles infected from such, should not be moved in any public or private conveyance, except under the supervision of the health department. The State board of health should be empowered to appoint local boards in the towns. The efficacy and necessity of revaccination should be given more publicity. The worth of disinfecting inunctions of the body in the exanthemata should be borne in mind, as should also the futility of incomplete general disinfection; not only must the body of the sick, but everything in the room,—the walls, wood-work, carpet, clothing, and furniture,—be subjected to the thorough purification.

To have our plans carried to a successful issue money is required, and the Legislature and city governments ought to be shown wherein we are hampered by lack of funds; much good has been done, but very much remains undone because of the insufficiency of appropriations. Let us be explicit, and point out to them what should be done and how it may be done to the best advantage. With a little effort, I believe it could be satisfactorily proved that it is as wise and necessary to maintain an efficient health department to protect our lives as it is to provide an active fire department to guard our property.

This paper has been purposely confined to the discussion of

such parts of its subject as seemed most interesting to you as physicians of the United States, and for that reason has not touched on many points that have been suggested. The subject is replete with interest and must command much thought from the progressive men of the present age. Under the benign influence of preventive medicine, statesmen will see more contentment, less strife, better morals, happier homes, and purer laws; scientists will develop the wonderful works of creation and reveal to our clouded minds many things now obscure; political economists, realizing that money, even lavishly expended, that good may come to all, is not profligacy, may work out in cold figures the saving to their governments in sickness averted, lives lengthened, and deaths frustrated; and the whole world, thrice blest, will, in dying, salute the goddess Hygeia for her many benedictions.

Remarkable Centenarianism.¹

BY P. C. REMONDINO, M.D.,

Member of the American Public Health Association, of the American Medical Association
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of the City of San Diego.



CENTENARIANISM is always something of interest, and more especially when this seemingly long span of existence is reached with full mental vigor. M. Chevreul was as bright when past his centennial as when at fifty. So was the late M. Renaudin. In April of the present year Dr. De Bossy, of Havre, celebrated his one hundredth birthday. Born in Paris during the Reign of Terror,—on the 9th of April, 1793,—his father, being forced to fly, found refuge in London, where the young man received an English education and began the study of medicine. Dr. De Bossy has practised in Calcutta, in the Isle of France, and Isle Bourbon, so that his physical system has been subjected to the debilitating effects of more than one tropical climate. In his resistance he is, however, a living exemplification of the proposition set forth by that painstaking investigator into the science of longevity, Dr. George Murray Humphry, who asserts that “the prime requisite

¹ From the Pacific Medical Journal.

is the faculty of age in the blood by *inheritance*; in other words, that the body has been wound up, as it were, and sent into the world with the vital force necessary to carry on the living processes through a long period, that this is the case with every organ, and that the several organs are so adjusted to one another as to form a well-balanced whole." Dr. De Bossy certainly came by that wonderful inherent tendency to wear and to last from his father, who lived to the age of 108.

On being questioned as to any adopted rule, he remarked that he had none, nor had he ever followed any: in fact, he was an enemy to all *régime*, unless you might say that never having abused anything and used everything is any kind of a rule. What the doctor's idea of the abuse of an article may consist in would be rather difficult for another to determine, as upon being questioned as to the effect of coffee on life and health, he asserted that it was most excellent, as he had often partaken of as many as forty cups a day,—and that in the tropics. He was not a smoker, but a good snuffer and a good liver, as well as a hard worker. Last year, so attentive was the doctor to the cholera patients that he was awarded a medal of honor. He is still actively engaged in practice, rises at seven, walks to his visits,—having given up carriage-riding some years ago on account of the jolting,—and daily attends to his office hour practice, which has for many years been from three to four in the afternoon, except on Sunday. This day he always gives to recreation and to incursions into the neighboring *campagnes*.

Asked as to his views of modern medicine,—the old gentleman keeps himself well posted on all current medical progress,—“I have lived so long and so peaceably with the much-abused and much-made-of microbe that I do not entertain the same dread of him that the new generations affect. In fact,” continued the centenarian physician, “I don't think the microbe is such a bad fellow on the whole. He is simply an indispensable part of the scheme of nature. He is being made unnecessarily famous. We have always had him with us, and we will continue to associate with him.” The doctor is a firm believer in the “*de novo*” origin of most diseases, and condemns the modern way of ascribing all diseases—from the time of Moses to the present—as being at all times of a specific germ origin.

Dr. De Bossy has never been sick, nor has he ever had any rheumatic affections. He goes up two flights of stairs to his

apartments in the third floor of No. 136 Rue Thiers, without difficulty, and anticipates a number of years of useful work.

Married couples passing the one-hundredth-year distance-post, hand in hand, are rarities. Sir Humphry mentions Benjamin Atkins and wife, who lived to past centenarianism, having been married together over forty years. If these are rare, what must be said of an aged couple who lately celebrated their one hundredth *wedding* anniversary? This unique celebration actually took place in Zsomboli, commune of Banat, in Hungary. Official verification shows that the couple were married in May, 1793, and the old people of the village remember them as being old people when they were youths. The old couple have been able to support themselves by their labor and the produce of the little farm which they work.

That these extreme ages should be met with in Hungary is not surprising. It only further accentuates the influence of a strong—that is, enduring—animal constitution, as we also find very extreme cases of longevity in Poland, where, like Hungary, the climates are most trying, and none but those who inherit a resisting organism can survive. The Irish climate—especially that of the western coast—is the most favorite climate for the fostering of life at any period, and with one of the smallest infant mortality rates in Europe. Ireland also gives the greatest average number of years of existence for each decedent, but its poor and weakly-dispositioned mingling with the general population prevents that inbreeding of stronger and more enduring constitutions that have given other countries such examples of extreme longevity.

Bacteria in the Soil at Different Depths.

Some investigations carried out by Dr. Alexander A. Houston, of Edinburgh, respecting the number of bacteria in the soil at different depths from the surface, go to prove that the micro-organisms become less and less abundant as the depth from the surface increases. For example, the average number of germs in a gramme of soil examined, which was taken from the surface, was 1,687,799; at a depth of three feet this average fell to 173,807; and at a depth of six feet was only 410. These figures are interesting, and would tend to show that at a certain definite distance from the surface the soil would be sterile.—*London Medical Press.*

Remarks on the Epidemic of Small-Pox in Chicago.

BY ARTHUR R. REYNOLDS, M.D.,
Commissioner of Health of the City of Chicago.



HAT the public is interested in learning is what were the causes of this outbreak? Were they avoidable? Have the proper measures been enforced to arrest the progress of the outbreak? What is necessary to prevent a recurrence of such outbreaks? What are the prospects for the immediate future?

First, as to the causes: It is unfortunately the fact that in this country general vaccination is secured through the immediate dread of small-pox, as during a widespread outbreak of the disease, a so-called "epidemic." The last general vaccination, not only in Chicago, but throughout the United States, was during the epidemic of 1881-83. About ten years prior to that—namely, during the epidemic of 1871-74—vaccination was also general, as it was during the epidemic following the close of the Civil War. In the intervals between these periods small-pox occurred only sporadically, and caused little or no alarm. In the absence of this menace vaccination was generally neglected until another general outbreak caused it to be resorted to. While it is incontestably true that vaccination secures immunity from small-pox in an immense majority of cases, it is also true that the degree of the susceptibility of the small-pox contagion varies with the individual. This is shown by the fact, observed long before the days of Jenner, that while, as a rule, one attack of small-pox secures against a subsequent attack, nevertheless there are persons so susceptible to the contagion that they are attacked a second or third time, or even oftener.

What is true of these exceptions to the rule that one attack of small-pox is a preventive of a subsequent attack is also true of vaccination. With this additional limitation, that the protective power of vaccination is impaired by the lapse of time in a large number of individuals. As the result of experience and observation, the best authorities have fixed the period of five years as the practical limit beyond which it is not safe to rely upon a given vaccination.

To apply these observations to the cause of the present

attack : During the intervals between these general vaccinations there is a steadily-increasing number of the individuals susceptible to small-pox, made up of those born during the interval and not vaccinated, of those in whom vaccination has lost its protective power, and unvaccinated immigrants and others coming into the community. Added to those are the hypersusceptible individuals whom neither repeated vaccinations nor a previous attack of small-pox will protect. Statistics of some epidemics show that one person in a hundred is attacked a second time, and on this basis we have in Chicago at least 16,000 persons who are always liable to have small-pox, whether protected by vaccination or an attack of small-pox.

The population of Chicago in June, 1882, when vaccination was being made general, was 560,693. To-day the population is fully 1,600,000, and what proportion of this number were really ready last fall to furnish material for a small-pox epidemic may be estimated from the foregoing date. The first cause, then, of the present outbreak was a ten years' aggregation of individuals susceptible to the small-pox contagion, and a second cause was the introduction of the contagion,—the application of the spark to the magazine.

Just how often and whence the contagion was introduced it is impossible now to say specifically. Opportunity has not yet been afforded to follow up the clews in possession of the department. It is more than probable that the origin in Chicago was both from domestic and from imported sources,—that is, both from States and from immigration. Up to April, 1892, Chicago has been free from small-pox for the longest period in its history, from December, 1889, a period of twenty-nine months. In 1892 began the heaviest immigration since 1882, and for a year or two previous large numbers of artisans, working-men, and laborers have been flocking to the city, drawn by the high wages of the World's Fair construction and the unexampled activity in other building operations. During all this period of Chicago's immunity there were occasional outbreaks of small-pox in other States, some of them in serious proportions, and for the close of the period the disease prevailed outside of Chicago to such an extent that the United States Marine Hospital service made an inspection of all immigrants and of others coming to Chicago from infected localities.

An occasional case began to appear in Illinois outside of

Chicago, which still remained free from disease, and finally the State Board of Health, at its annual meeting in January, 1893, officially announced that the United States was in greater danger of an epidemic of small-pox than of the Asiatic cholera. Emigrant-carrying steamers, infected of small-pox, arrived repeatedly at the Atlantic seaports, and a bulk of their steerage passengers came to Chicago either for residence or for distribution. That the contagion was repeatedly introduced into Chicago in 1892 and 1893, notwithstanding the immigrant inspection service, is shown by the following figures :

In 1892 there were two cases in May, and in June one case, and no other until November ; in December four cases. In 1893 : January, three cases ; February, three cases ; March, none ; April, five ; May, none ; June, one ; July, three ; August, eight ; and thenceforward an increasing number until November, when the outbreak may be said to have assumed grave proportions. During the six months of this period—May 1 to October 30, 1893—an enormous aggregate of persons—visitors, exhibitors, and attaches, drawn from all parts of the habitable globe—were housed in Chicago during their attendance on the World's Fair. It would be strange, indeed, if among these and among the immigrants there had not been not only infective material but actual cases of undetected small-pox. In July, 1893, during the mid-period of the Exposition, six cases of the disease were found in three different localities, each separated miles from the other, and three of the cases were found within two days. The evidences of distinct and almost simultaneous introductions in these cases were conclusive.

The causes of the outbreak are obvious. An aggregation of persons susceptible to the contagion of small-pox and repeated introductions of the contagion. Were these causes avoidable ? In the absence of the general and continuous vaccination, No. Without such stringent governmental control of the individual, as obtained in some European countries, vaccinations cannot be made compulsory except during an alarming prevalence of small-pox, when, indeed, vaccination becomes voluntary and not compulsory.

In this country the extent of the vaccinal protection of the community is the measure of its intelligence. It is not the better sanitary environment alone through our best residence districts that secures practical immunity from small-pox to their inhabitants.

It is the active appreciation of the virtue of vaccination. The disease is as virulent and as deadly to-day among the vaccinally unprotected of all classes as it was before the discovery by Jenner, when the pock-marked face, the hideous deformity of eye and nose, and every feature was as common among the nobility as among the denizens of the slums.

And here lies a duty of the public press, to exploit the value of vaccination and to urge its general and continuous enforcement. If not generally and continuously enforced there is only one other method of preventing the recurrence of small-pox outbreak whenever the aggregation of unprotected is great enough. That method consists in the maintenance of a non-intercourse quarantine against any infected place when the disease appears in this country. This, of course, is impracticable. There have been since this epidemic began a total of twenty-five States effected, exclusive of Canada and Mexico. A non-intercourse quarantine would mean that Chicago should shut up shop and go out of business. There would have been no World's Fair nor 1,600,000 people here if such a method had been resorted to. Under the circumstances and conditions the outbreak was clearly unavoidable.

Have the proper measures been enforced to arrest the progress of the outbreak? The best answer to this is the record,—eight positively known distinct new introductions of the disease and ninety-seven separate infected centres treated by the department in 1892 and 1893, without any spread in a single instance, and seeming period of absolute immunity from the disease bearing from one month to four months in duration. It was not until after repeated introduction of the contagion, extending from May, 1892, to November, 1893, a period of eighteen months, during which the efforts of the department were unremitting in "stamping out" each successive outbreak, that the contagion finally got a foothold, due to suppression and concealment of cases, secretion of infected material and rejection of vaccination. When this became apparent, application was at once made to the City Council for an emergency appropriation with which to fight what was foreseen was likely to be a serious outbreak, and a comprehensive and systematic campaign was begun in December, 1893. Attempts at quarantine and isolation in a large city have seldom proved entirely successful, and therefore so far as was practicable cases were removed to the hospital until this was taxed beyond

its capacity. After encountering serious opposition, entailing much delay, another hospital has been established with a capacity of 600 patients. Approved methods of disinfection have been enforced in every known instance, and the value of this work is shown in the fact that in no instance has another case of small-pox occurred in a house after the treatment by the department. A much-needed disinfectant plant of ample capacity has been erected and the ambulance service increased to an extent adequate to any possible demands. The city has been divided into districts from 500 to 10,000 inhabitants; each district is in charge of a competent medical man, who is held responsible for the efficiency and the results of the work in his district; over four vaccinators and disinfectors are assigned to these districts, and every infected house and its belongings are thoroughly disinfected and kept under surveillance until all danger is passed; a systematic vaccination or revaccination of all the inhabitants of each district is being carried on by house to house visitation inspection. Some conception of the magnitude of the vaccination work already accomplished may be formed from these figures: Number of vaccine points used between December 1 to April 30, 1894, 321,400; number used between May 1 and May 21, 304,900; total used between December 1, 1893, and May 21, 1894, 626,300. At present the department is using an average of 14,500 points per day. To protect against the further introduction of small-pox contagion, as well as to guard neighboring States and communities, an inspection of railway travel is maintained by the city and of lake transportation by the United States Marine Hospital service. The district in which those employed in the manufacture of clothing and other wearing apparel live and work under special inspection, aided by the State factory inspectors, and under the supervision of the State Board of Health, which body has made itself responsible to other State boards for the freedom from small-pox infection of all garments made in and shipped from Chicago.

It would add nothing to the value of the statement to attempt to detail the difficulties and obstacles with which the department has daily and hourly had to contend. A long period of freedom from any unusual demand upon its resources had led to the usual result. The force of the department had been reduced to the lowest limit; its regular appropriation had been scaled down with those of other municipal departments; its hospital facilities were inadequate, its ambulance service was equal only to the most

ordinary demands; its disinfecting plant was primitive and limited,—in short, because the health of the city had been good for some years the department had been reduced to its lowest terms. Added to the other reasons for scaling its appropriations was the fact that unusual expenditures had been made for the improvement of the water service, as the most effective method of abating the undue typhoid fever prevalence. When, after successfully suppressing every successive outbreak for a period of eighteen months, small-pox finally assumed threatening proportions in November, 1893, it remained to reorganize the department. Appropriations were to be secured and their necessity demonstrated; a corps of competent men to be selected; hospital facilities extended; an ambulance service created; and then came the heart-breaking struggle with ignorance and prejudice, where every weapon of resistance to the efforts of the department, even the acts of personal violence, was employed. That there have been faults in the work, sins both of omission and commission, is beyond question, but experience has shown that these are unavoidable in such emergencies. Faithless and incompetent subordinates have been and continue to be weeded out as promptly as they are discovered; the efficiency of the corps is steadily improving, both by added experience and by the process of selection of the fittest, and there now remains little ground for fault-finding and adverse criticism.

What is necessary to prevent a recurrence of such outbreaks? Although the answer to this has already been indicated, it may be well to emphasize the fact that only by general and continuous vaccination can any community hope to escape outbreaks of small-pox. It is one of the oldest known diseases afflicting mankind; it is one of the most widely diffused, being epidemic in Africa and thence carried by commerce to every quarter of the globe; it is one of the most virulent and one of the most persistently contagious of diseases. Therefore we are likely to have its contagion, like the poor, always with us; and wherever the contagion finds a sufficient number of susceptibles there will be set up an epidemic outbreak. The only known means to prevent such a disaster is by preventing the aggregation of susceptibles, and that this can be done only by general and continuous vaccination is a demonstrated fact. It has been abundantly proved that just in proportion as vaccination is efficiently and properly performed—which implies its necessary repetition—it markedly

diminishes mortality from small-pox ; that it renders small-pox a mild disease as compared with the disease in the unprotected ; that it is an almost absolute security against death from small-pox. And, on the other hand, it is just as incontestably proved that (in the words of the eminent English sanitarian, John Simon) "Wherever vaccination falls into neglect, small-pox tends to become again the same frightful pestilence it was in the days before Jenner's discovery ; that wherever vaccination is universally and properly performed small-pox tends to be of as little effect as any extinct epidemic of the middle ages."

What are the prospects for the immediate future? At the rate at which the vaccination is now progressing, the entire population of the city of Chicago will have been vaccinated at least once within the next twenty days, and a large proportion of those who need it will have been vaccinated a second or third time. It is the purpose of the department to go over this work again and again until the vaccinal protection of every man, woman, and child within the city limits has been secured, if such a thing be possible. It is believed that this can be done before the advent of cold weather.

The medical profession, almost without exception, is, I am glad to say, giving the most cordial and efficient support to the department of this effort. Will the public press of the city do the same? It should be added, in conclusion, that "the prospects for the immediate future" may be in some measure forecast in the reduction of new cases since this wholesale vaccination was begun,—that is, the vaccination since May 1. For the first seventeen days of May the daily average of new cases was over thirty. During the last week, and notwithstanding the low temperature, the total number of new cases has been eighty-one, a reduction of 61.7 per cent. It is not too much to claim that this is a direct result of the work done three months since.

Ice in Asthma.

One of the best means of relieving the spasm of the small tubes present in asthma is the application of ice over the region of the pneumo-gastric nerve in the neck. Severe attacks are often relieved in five or ten minutes.

A Case of Diphtheria in a Child transmitted from a Chicken.¹

BY W. C. COLLE, M.D.,

Jacksonville, Ill.



ON the afternoon of December 7, 1893, I was called to see Louisa J., aged $2\frac{1}{2}$ years, the youngest in a family of four healthy children, living in a healthy locality.

The child seemed weak, had some fever, tongue coated with a whitish fur, fauces somewhat congested and inflamed, though there was nothing in the appearance of the throat to indicate anything other than a simple inflammation.

While these symptoms were trivial in themselves and would not justify the opinion that the case was one of diphtheria, yet there was that something about the case—the listlessness, the indescribable aspect, etc.—that leads the physician to feel that there is a grave malady of some kind about to break forth.

At my second visit, next morning, some two or three white or grayish-white spots appeared on the left tonsil; the temperature was 103° , pulse 140, and the little patient in every respect worse.

By this time I was fully convinced of the true nature of the disease,—that it could be nothing else but diphtheria.

In brief, there was nothing in the case, *per se*, that would make a detailed description of the symptoms, course, treatment, and ultimate result of special interest.

It is not on account of any of these that I report the case, but rather because of its etiology.

Suffice it to say the case continued from bad to worse until the 18th, or eleven days from date of commencement, when the little patient succumbed.

The query naturally arose, Where did this child contract the disease? There were no sewer, drain-pipes, sinks, cesspools, or anything of the kind about the house, no decaying animal or vegetable refuse,—in short, everything seemed to be in good sanitary condition.

¹ From the Archives of Paediatrics.

At the time this child was taken ill, the family had some twenty-five or thirty chickens ; some of these chickens had been sick for a week or ten days, and had a peculiarly bad smell about them. As the weather was quite cold, Mr. J. took one of the chickens, that was almost dead with cold and sickness, into the kitchen to warm ; while there the baby picked it up, held it to her cheek and otherwise fondled it, though only for a few minutes. This was four days before the baby was taken sick.

During the child's illness the father, happening to meet a poultryman, described the condition of his chickens and asked him what could be the trouble with them. The poultryman replied that from his description he thought the chicken had the rupe, a serious trouble, and one that kills a great many chickens, especially if they are not treated early.

As two or three of the chickens had died by this time, the one that the baby had nursed among them, and the rest had come to be a regular nuisance, he concluded to kill all that showed any indications of being sick, not suspecting that they had been anything more than a care and a nuisance. In four or five days after the death of the child, the father was visiting the other children of his family at their grandmother's where they had been sent. While there he chanced to pick up an old number of the *Poultry Keeper's Journal*, in which he saw the word "rupe." Remembering what the poultryman had said about rupe, he read until he got down to a point where it said, "like diphtheria in the human ;" it immediately flashed upon him that possibly that was where his child had contracted its disease, so without reading further he came to me with the paper containing the article.

After reading it I assured him that, in my opinion, such was really the case : that the mystery was at last solved. We had read of such cases ; here was one now at home.

Three months have now elapsed since the death of this child and none of the other children in the family have had the disease, nor has there been any other case in the neighborhood.

May not the origin of this and similar cases help to explain some of the epidemics of diphtheria which follow or accompany scarlet fever, and which have led able men to regard the two diseases as identical, or at least as arising from one and the same cause ?

In this connection let me add the observations of a few others as regards the transmissibility of diphtheria from the chickens to

the human. Dr. Nicati, of Marseilles, suggested a similar relationship between diphtheria of fowls and the diphtheria of the human being : a careful study of the diseases of the poultry-yard convinced him of the true diphtheritic character of the disease. He successfully inoculated various animals with the false membrane, and also showed that the outbreak of the malady among the fowls coincided with an increase of the diphtheria among the inhabitants of the city. In conclusion, he observes this coincidence between diphtheria of poultry and that of the human species, the analogy in the clinical character of the two diseases, and the inoculability of the diseases by means of the false membrane, render their identity more and more probable.

Dilthil, in an instructive paper on the transmission of diphtheria from animals to man, relates a considerable number of instances in which the genuine disease was apparently contracted in this manner.

Gerhardt reports the following : 2600 hens were imported from Verona, Italy, into a village, Messelhausen, in Baden ; some of these hens were affected with diphtheria when they arrived. Within six weeks, 600 of their number died of diphtheria ; and 800 more soon after. In the following summer 1000 chickens were raised by artificial breeding, all of which died of diphtheria within six weeks.

Four of the six workmen employed in taking care of the hens of the establishment were taken with diphtheria ; not a single case, however, occurred in the neighboring village. Thus, says Gerhardt, it is safe to assume that the diphtheritic disease of hens can be transmitted to man.

Bild states that the island of Skiathos, off the northeastern coast of Greece, had been entirely free from diphtheria during at least a third of a century, when a dozen turkeys were introduced from Salonica. Two of them were sick at the time, and died soon afterwards ; the disease appeared in the remainder, seven of which died. The two remaining turkeys at the time of the examination were found to have difficult breathing, due to a pseudo-membrane which covered the larynx and swelling of the glands of the neck. They recovered, and one of them had subsequently paralysis of the legs. An epidemic of diphtheria commenced in a house near the garden where the turkeys were kept and spread over the island. One hundred and twenty-five cases occurred, with thirty-six deaths, in a population of 4000.

H. Barbier supports the doctrine that diphtheria may be transmitted from the lower animals to man. He says it is a known fact that fowls suffer from a disease of the throat, characterized by the formation of a false membrane; and he considers this as an important etiological factor in the transmission of the disease.

In "Sajous's Annual" for 1893, J. Lewis Smith and F. E. Warner say, "Observations are accumulating which show that diphtheria occurs in certain animals, and is sometimes communicated from them to man. This has been proven by inoculations, in many laboratories, made for experimental purposes.

"The feathered tribe, especially, appears to be liable to this disease."

Milk as a Diet for Adults.

BY LUTHER S. HARVEY, M.D.,

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N your "Query about Milk," in your August number, you say, "It is only possible to procure milk for adult use by interfering with the laws and processes of Nature." If you would exclude all foods which come under this category, I am afraid humanity would go a-begging. Eggs, for instance, were evidently designed to perpetuate the kind of fowl by which they are laid. Is it not an interference with the processes of Nature to rob the fowl of eggs in order that we may enjoy on our tables the fruits of her labor? Is it not an interference with the laws and processes of nature to take animal life in order that we may eat of their flesh?

Then, in the vegetable kingdom we are constantly interfering with the processes of Nature in order that we may obtain food. The original design of the production of seed in the plant was evidently for the reproduction of its kind. It is as much an interference with Nature's laws to rob the plant of its seed as to rob the cow of her milk. It might be claimed that by cultivation we raise much more grain than is needed for seed, and so do not rob Nature. So do we by our cultivation of fine breeds of milch cows cause the production of much more milk than is needed for

the raising of calves. By our systems of feeding and care, the natural amount of milk is greatly increased, and that without detriment to the animal. If this so-called interference with the laws and processes of Nature were wrong, then our breeds of cattle would have deteriorated rather than have improved.

The high estimation in which milk is held as a food is certainly not one of the fashions or fallacies of medicine, but a fact founded on well-known physiological principles. Physiologists tell us that milk is the most perfect of all foods. It is well-known that milk contains every element essential to the animal economy of the adult as well as of the child. Its easy digestion and perfect assimilation are proved by the fact that it is readily digested and assimilated by the youngest and weakest child, and by invalids whose stomachs will tolerate almost nothing else.

The fact that milk does not "agree" with some, does not militate against its value as a food in general. There is almost no food which personal idiosyncrasy does not make it impossible for some persons to take. It should be borne in mind that milk is a food and not a beverage, and cannot be taken in large quantities with a full meal without danger of overloading the stomach. Again, milk should be taken slowly so as to enter the stomach in small amounts. Milk is curdled immediately on entering the stomach. If a whole glass is taken at a time, a curd is apt to form of the size of the amount ingested. These large curds are broken up very slowly and digestion thus delayed, causing distress. We would do well to take a lesson from Nature in the drinking of milk. On account of the slowness with which milk is obtained by the sucking process of the young, only small quantities enter the stomach at a time, forming small curds which are readily broken up.

Overloading of children's stomachs is a frequent error. The amount taken at a time should be carefully regulated according to the age of the child. The distress caused by the overfeeding of infants has often led to the belief that milk did not agree with the child, and other less nourishing foods have been resorted to.

I feel safe in saying that pure milk, obtained from healthy animals and taken in proper quantities, is the most nutritious and healthful single article of diet that Nature affords.

Natural Sanitation.¹

BY W. H. BARNES, ESQ.



NATURAL conditions which should be incident to the life of human beings, conducive to long and healthful life are :

- (a) Breeding from parents free from physical or mental taint.
- (b) Feeding the infant upon the mother's milk.
- (c) Higher regard for the physical than mental training of youth.
- (d) Pure air, pure water, pure food.
- (e) Wearing loose clothing.
- (f) Natural sleep and plenty of it.
- (g) Natural labor—physical or mental—unforced.
- (h) Dwelling-house free from filth, having free access of sunlight and air.
- (i) Use of earth closets.
- (j) Prompt elimination of effete matter from the body, by the lungs, skin, bowels, and kidneys.
- (k) Frequent washing of the body.
- (l) Frequent change of all articles of clothing.
- (m) Burning of the dead.
- (n) Exercise of passions within natural prompting.
- (o) Constant occupation,—physical and mental.

INSANITATION.

The unnatural conditions incident to human life which are conducive to ill-health, disease, and early death are :

- (a) Habits peculiar to the higher modern civilization in its influence upon both body and mind. Cultivation of luxurious living rather than following natural instincts.
- (b) Inheritances by breeding from parents who are physically and mentally tainted with disease, such as syphilis, consumption, rheumatism, alcoholism. Low physical development, malformations. Insanity or mental bias. Marriage between those of near family relationship.

¹ Dietetic and Hygienic Gazette.

(c) Impure air. Bad ventilation in sleeping-, work-, school-, or lecture-room; theatres, halls, churches, sleeping-cars, railway—day or night—ordinary passenger-cars; palace-cars; dépôt waiting-rooms; hotel sleeping- or dining-rooms. In water-closets, sewers, and privies.

Impure air in these places arises from expired air from the lungs and the effluvium from the skin, loaded as it always is with effete matter.

Air becomes impure from the floating dust arising from dried filth, which includes the spittle and phlegm of diseased human beings and animals. The eliminated excrementitious and effete matter from the animal or human body. From decayed rotting or fermenting waste of a vegetable or animal nature. These influences are incident to every place inhabited by animals of high or low degree, including man, and the palace as well as the hovel may be tainted.

(d) Impure water which becomes so by contact with the following influences:

Human and animal excreta; surface deposit, or in privies, cesspools, and sewers.

Kitchen refuse, bath-tubs, laundries, slop-water, garbage, decayed vegetable matter on surface of ground or in water. Barn-yards, stock-yards, pig-pens, cow- and horse-stables, grave-yards.

Vegetable acids from soaked leaves, branches, and roots of trees and bushes on water-shed.

Artificial and natural manures, washed from agricultural fields on water-shed.

Swamp-scum and fungus growths, swamps, stagnant pools, marshy bottoms.

Low stage of water in tributaries on the water-shed.

Turbid water from canals and stagnant pools.

Dead animals, fish, and spawn in water, or on the surface of the water-shed.

Street and road drainage, public markets, slaughter-houses, putrescent impurity from decaying animal tissue, blood and excreta.

Tanneries.—Refuse, decayed animal tissue, and chemicals from the process. Sulphuric and tannic acid, bark, liquors, etc.

Creameries.—Fermenting refuse from process of cheese- and butter-making.

Malt liquors, breweries, alcoholic liquor distilleries, refuse fermenting vegetable matter for them.

Paper mills, chemical pollution from lime, chloride of lime and alum, caustic alkali, etc.

Pollution by chemicals, grease oils, spent liquors, etc., wasted from dye-works, chemical works, woollen-works, cotton-works, gas-works, and wool-washers.

Sulphate of iron and oil of vitriol from iron- and wire-mills.

Drainage from coal-mines, coal-yards, railroads, and locomotive houses.

Oil-wells, natural gas-wells, iron-mines, bog iron ore, lead-mines, lead pipes, sulphuric acid, tannic acid, lime, sulphate of lime, carbonate of lime, magnesia, salt, and chlorine.

To the above may be added, under the general head of sewerage, anything and everything which pertains to and is incident to human and animal life, manufactories, trades, professions, and sciences, and denominated refuse or waste.

It may be stated, as a general proposition, that all waters taken from a water-shed which is inhabited by human beings, under the most modern state of civilization, are more or less contaminated by one or more of the various causes which have been stated.

It may also be stated, as a general proposition, that all waters in a natural state, whether proceeding from the clouds as rain or coming from the earth, contain impurities which are injurious, subject to such exceptions as may be peculiar to certain conditions and environments.

(e) Communicable diseases :

(1) Insanity ; syphilis ; rheumatism ; consumption ; physical debility ; alcoholism ; mental bias in favor of immorality ; various manias not amounting to insanity ; physical deformity and nervousness.

} By bad breeding, through inheritance.

(2) Small-pox, scarlet fever, measles, whooping-cough, skin-diseases, diphtheria, puerperal fever, yellow fever. Vegetable and animal parasites and vermin.

} By contact with the diseased, their clothing, or surroundings. By dust arising from diseased scurf and dried effete matter from the body.

| | | |
|--|---|---|
| (3) Typhus fever, typhoid fever, cholera, dysentery, inflammation of stomach and bowels. | } | By contact with filth, by water, milk, or other liquids and food containing the germs of the disease. |
|--|---|---|

(f) Mental and nervous diseases of various types. Caused by grief, worry, anxiety, disappointment, shock from sudden joy or sorrow. Wounds: chronic diseases, inherited or induced by alcohol, morphine, opium, tobacco, coffee, or tea. Diseases peculiar to the female sex. Fanaticisms, religious excitements. Physical vices or worry incident to commercial and professional life.

Of the foregoing influences which cause conditions which are at war with sanitation the most serious may be mentioned as follows:

Impure air, water, and food. Filth, uncleanness. Bad breeding. Consumption. Diphtheria. Fever of various kinds mentioned. Improper disposal of excreta, of disease-tainted clothing and furniture, and insanitary disposal of the dead by burying in the ground. Careless contact of persons one with the other, who are under the influence of disease, by association, or in any other manner. Alcohol and narcotic poisons.

Such are the conditions incident to insanitation the world over.

Regulations for the Storage and Removal of Garbage.¹

STORAGE.



EVERY family should provide one or more garbage receptacles. Garbage receptacles should have handles on the sides, and they should not have a greater capacity than twenty gallons. They must be water-tight and have tightly-fitting covers, and the covers must be kept on. They should be frequently cleaned. Dust them on the inside every day with powdered quicklime immediately after they have been emptied.

Tin cans, ashes, and rubbish must be kept separated from garbage. No dish-water nor any other fluid waste should be added to the garbage.

¹ Issued by the State Board of Health of Pennsylvania.

Rain water should not be allowed to fall into the garbage receptacles.

Ashes will be collected by the public carts. The ashes should be stored in suitable receptacles and placed on the sidewalk near the curb the evening before. On unpaved streets, clean ashes may be evenly spread upon the roadway, but they must not be put into piles or heaps.

Rubbish, including waste paper, broken glass, sweepings, rakings, etc., will be removed daily, if placed in barrels and put out on the sidewalk. Do not put out rubbish later than 8 A.M.

If there is neglect on the part of the garbage contractor or his employés in the prompt and proper collection and removal of garbage, verbal notice should be given to the police officer on duty in the locality, or written notice may be sent to the board of health.

REMOVAL.

Between April 15 and October 15, all garbage and offal shall be removed from all premises daily, except Sunday, and between October 15 and April 15, twice a week, between the hours of 6 A.M. and 6 P.M., and transported to such point or points as the board of health shall approve.

Every receptacle from which garbage is removed shall be wholly and entirely emptied of its contents, and none of said contents shall be permitted to fall on the ground. All covers of garbage receptacles shall be replaced after the garbage has been removed.

In the case of fish markets, no fish-heads or any other offal shall be emptied from the receptacle in which it is stored, but both offal and receptacle shall be removed and transported together, and the said receptacle shall not be brought back until it has been made clean and odorless by washing and scrubbing.

All wagons used for transporting garbage and offal shall be provided with a box or body which is water-tight. Said wagon boxes shall be tightly covered by wooden covers, and the covers shall be kept closed at all times, except when garbage is being placed in the box.

The garbage wagons shall be kept clean. They must be thoroughly washed inside and outside every day, and they must not be allowed to become offensive.

No garbage shall be allowed to stand or remain anywhere

in this borough longer than is absolutely necessary for the rapid collection of garbage.

All garbage-wagons shall be numbered with figures six inches high and one inch wide, placed on both sides of the body.

Garbage-wagons shall be used singly, and they shall not be worked nearer to each other than 600 feet in the same street.

Only authorized garbage collectors shall be allowed to remove garbage.

The Teeth of Our School Children; What Can be Done to Save Them?¹

BY JOHN C. MCCOY, D.D.S.,
Santa Ana.



NO doubt this question has been asked by every intelligent practitioner. Those who live in small cities or towns, and practise for all classes of society, have a better opportunity to know the condition of the teeth of the masses than does our metropolitan brother, with the aristocratic patient.

Ignorance and neglect go hand-in-hand, and are the cause of more diseases and of the loss of more teeth than all other causes combined.

For the past ten years my practice has been in a community that numbers among its citizens many persons of culture and refinement. Others whose exterior appointments of life are all that could be desired, and whose children are being trained in all the arts and sciences of the day, except that of cleanliness of the mouth. We have thousands of this last class. I have examined and worked for hundreds of them in the past ten years. The ignorance on the part of the parents, and neglect on the part of the children who know better, is one of the wonders of the nineteenth century.

In one school of 700 pupils, 500 from 10 to 18 years of age, I distributed printed slips with the following questions:

Do you cleanse your teeth with a brush every day?

Do you cleanse your teeth with a brush twice a day?

The teachers requested the students to answer the questions by writing the word "yes" or "no" to each question. The slips

¹ From the Pacific Coast Dentist.

were immediately gathered up. On summing up it was ascertained that out of 500 pupils, 50 cleaned their teeth twice a day; 275 used the brush sometimes; while 175 did not own a brush. Notice, the ages were from 10 to 18. In the primary department of 200 pupils from 6 to 10 years of age, the teachers say they do not think there were ten children in the department who used a tooth-brush.

This school is not an exceptional one in this manner, as further inquiry and investigation demonstrated. In fact, its graduates take high rank at our universities, and if there is any difference, it is in advance of most schools in percentage of those who have clean mouths, as well as neat clothes and bright faces.

When there is so much neglect and so little real care of the mouth, it is not strange that the sixth molars have to be sacrificed daily, because the patients cannot go to the expense of treatment to have them preserved, thinking all the time that this most valuable tooth is deciduous and soon to be replaced by one that is bacteria-proof, and will last forever in a mouth that has never been properly cleansed.

The school of 700 pupils mentioned, where only 50 made any pretence to regularly care for the teeth, shows what a field for instruction and training every teacher has. What an opportunity for philanthropy and missionary work!

The question before us is, What can we do to save the teeth of our school-children?

American dentistry leads the world to-day, and the world justly honors us for the great advances we have made in the preservation of teeth; but the fact still confronts us that millions of teeth are annually lost in America that need not have been sacrificed if proper care and cleanliness of the mouth had been commenced in childhood and continued to manhood or womanhood.

The dentists of America must solicit the aid of the public-school teacher. With their co-operation we can reach and train millions of children. A majority of the children of our land are in our public schools. They are under the teacher's instruction,—from 5 to 17 years of age. If the teachers were required to instruct and train the children in the proper care of their teeth, and insist upon their carrying out such instructions practically at home, we would have accomplished—or at least begun—a great work.

How can we bring this matter prominently before the educators of our land and secure their hearty co-operation?

Let the dental and medical press advocate it. Let each State Dental Association not only pass resolutions on the subject, but appoint a competent committee to arrange a manual on the subject of the care of the teeth. Let the same committee induce the State Board of Education to adopt such a manual as a text-book to be used by teachers, and taught in our normal schools, requiring teachers to be able to pass an examination upon the contents of such a manual, and then require them to carry out such instruction in their respective schools. May each one of us constitute himself a special committee to see that the spirit of this paper is carried out practically in the schools throughout the United States.

The Health of Boston and Philadelphia.¹



R. J. S. BILLINGS, in an article in the *Forum*, for July, discusses the relative mortality-rates of Boston and Philadelphia. Contrary to the usual rule that the larger a city the higher its death-rate, Boston has an average mortality of 23.59 per thousand, while Philadelphia has a death-rate of only 21.86. Some of the causes leading to this are the lower average level of Boston, the larger proportion of foreign-born inhabitants, and a greater density of population. The effect of race upon mortality cannot be compared, as in Philadelphia, the birthplace of the parents of the decedent is not registered as it is in Boston.

"The low proportion of tenement-houses in Philadelphia, and the fact that in that city each family, as a rule, occupies a separate dwelling, has a powerful influence in reducing its mortality. The figures for typhoid fever indicate a more polluted water-supply for Philadelphia than Boston. Diphtheria, measles, whooping-cough, cancer, and heart-disease were more fatal in Boston; but the differences in death-rates due to these diseases are insignificant in comparison with those due to consumption and pneumonia."

¹ From the Boston Medical and Surgical Journal.

The death-rates for these two diseases were for Boston 38.7 and 22. as against 29.8 and 16.4 for Philadelphia.

The returns for alcoholism, while below the true rates, show that alcoholism is nearly twice as fatal in Boston in proportion to population.

The conclusion drawn from the statistics is that the persistently higher death-rate in Boston for the last twenty years has been mainly due to diseases of the lungs. Climatic conditions have, in the long run, but small effect, for the extra mortality from respiratory diseases in Boston, during the winter months, is to some extent counterbalanced by the increased mortality of children in Philadelphia, owing to the higher, more continuous, summer temperatures.

The sewer system of Boston is better than that of Philadelphia; but although the death-rate of the latter city is already below that of Boston, it is probable that more can be done towards further lowering its mortality than can be done for Boston.

“Philadelphia has the immense sanitary advantage of having the great majority of its families supplied each with a separate house; and if it can obtain a fairly pure water supply, and a properly planned and well-constituted system of sewerage, it should be possible to maintain its death-rate for a series of years at about eighteen per 1000, while it is not probable that the death-rate of Boston can be brought by such means below twenty-one per 1000 for more than a year or two at a time. The causes of disease and death which the health authorities of Boston can probably attack with the most hope of good results are consumption and pneumonia; and this is to be done largely by educating the class most affected by these diseases as to the comparatively simple measures required to check their spread, and by aiding in thorough disinfection of houses, rooms, and bedding infected by their germs.”

There is a closing satisfaction given the Boston reader, however, in the statement that “the man who lives in his own house in Boston has as long an expectation of life for himself and his family as the man under similar circumstances in Philadelphia.”

Bicycle Riding for Women.¹



It is said that "everybody" rides the bicycle in Paris. This means that this form of exercise is both fashionable and popular. It seems to be a fundamental though an inscrutable law with the gentler sex that whatsoever obtains the stamp of fashion must likewise become popular. The influence of every great national centre throughout the world makes itself felt in every other, and, although we are dominated at present, so far as fashion is concerned, by London, to whom the bicycle still appears in too utilitarian a light to become socially attractive, still it cannot be very long before the influence of Paris must be effective both in London and in New York. Especially will this end be advanced among our fashionable women, if some enterprising dealer will put on the market machines with silver or gold spokes and fixtures for the insertion of panels with diamond coronets. At any rate, when it does become fashionable, it will not be long before nearly every woman from Fifty-ninth Street and Fifth Avenue to the Battery, east and west, will be yearning to ride. It behooves gynecologists, then, to consider carefully this subject upon which they will soon be called upon to pronounce professional judgment in private, dispensary, and hospital practice. We have paid but little attention to this contingency hitherto, probably because women bicyclists are still sufficiently uncommon on our streets always to excite attention. We have little experience, therefore, except by analogy, from which to draw our data. And yet, where professional opinion has found public expression, it has usually been adverse to the adoption of this practice by women.

No one will probably hesitate to say, *a priori*, that for women who have any form of pelvic disease or abnormality, especially if it be of a recent or of an acute character, bicycling would have a distinctly injurious effect. The pathological influence of the pedal sewing-machine, of running, walking, or even standing,—all of which excite muscular action similar to that involved in the use of the bicycle,—are too well known and appreciated to permit any sane man to encourage the latter among his gynecological patients who are suffering with pelvic inflammation. To married

¹ From the New York Journal of Gynecology.

women, also, before the menopause, it will always be guardedly advised by every honest practitioner because of its liability, in common with every form of violent exercise, to produce abortion.

But there are a certain number of women in this country, even among those long past puberty, who, hard as it is at times to realize it, have never had any pelvic disease whatsoever, and it will be in regard to these that we shall be called upon to answer the question, Is bicycle riding beneficial for women? We are inclined to think that, under these circumstances, it is. The muscular action is much more regular than in horseback riding, and the danger of accident, for a good rider, far less. For women past the menopause with a tendency to excessive flesh, to torpidity of the liver, to constipation, and to dyspepsia, it should be of especial benefit. But we fear that in this class of cases, in which it would appear to be most indicated, the power of feminine vanity will ever place a bar to our converting a probable theory into practical experience.

At all events, there is no other form of exercise within the capacity of the average woman which involves so general a muscular development and glandular action combined with a healthy mental and physical exhilaration.

Hygiene in Play.¹

BEFORE concluding our comments on school-house hygiene and the hygiene moral-mental training of the scholar, the *Notes* desires to add a few propositions on healthful exercise during that portion of school hours known as "the recess," and the attention of school boards and superintendents is especially invited to this subject, as it is a matter peculiarly coming under their control.

As no school-building can be said to be well constructed for salutary teaching in which minute regard has not been paid to ventilation, floor space, and lighting, so it is equally true that a school-building is not well located when the grounds about it are limited in space or there are no grounds at all.

¹ From Florida Health Notes.

The number of hours in which the growing child should be closely confined to study has been quite extensively discussed of late in educational circles, and was debated upon largely at a recent meeting of the medical profession of this State. It seemed then to be the consensus of opinion that six hours in school were quite sufficient for daily application to the books, and that for the very young, those under 10 or 12 years of age, this period should be interrupted by one or more "rests" and play when the child, in pleasant weather, should be compelled to go out-doors, and the room be given a thorough airing and purification.

Unfortunately in our larger cities, the value of real estate, increasing with the growth of population and the demand of trade for avenues to conduct its extending business, has encroached upon the school-building, which, for convenience, was primarily located near the centre of the village, and to such an extent is this trenchment that it is no longer happily placed in its environment, but is shut in by dwellings and trade-houses, and surrounded oftentimes by a vitiated atmosphere and noisy traffic. The "open" around the building, which the school board did not at the time of erection have the foresight to secure at a mere trifle, has so increased in money value and been bought up by speculators that, even if now untenanted, it is beyond the purse of the board to obtain. It is to remedy this evil in the future—for anything is an evil in education which disparages the harmony that for health must exist between brain and muscles—that the *Notes* calls upon the school boards of the State to see that all public school-buildings have spacious grounds about them to give the scholars of both sexes ample opportunity for healthful exercise, with pure air during the few minutes allowed for play in the respite of study.

Another thought occurs to us just here in connection with this subject that school boards would display judgment in purchasing land near the peripheral limit of towns for future use of school sites, when the increase of population and trade just spoken of makes the present location of the school-building undesirable in many particulars.

That exercise may be beneficial to brain as well as body, school-grounds should be filled up with those simple gymnastic appliances, which, while not tiring by strain, induces precision of movement and accuracy of attention to details of exercise and incites the intellectual faculties to healthy action as well as the

muscular system. The harder the romp during the temporary release from the school-room, the greater the refreshing of the mind, and the child returns to his books with quickened intellect and greater aptitude. It is a safe rule for a teacher to follow that whenever the "little ones" appear weary, get restless, or begin to yawn, it is a sure index of the demand of nature for fresh air to brighten up the blood and send its life-giving qualities to the exhausted brain and muscles. We think that teachers would probably be justified in singling out young scholars who tire easily under confinement and allow them an excess of play over others whose natures do not seem so often to demand it.

To the query which is certain to be asked, What is to be done in the way of exercise for school children where there are no proper grounds around the building? the *Notes* makes this suggestion: Supply this deficiency in part—it will not be wholly satisfactory, but will be better than no effort at remedy—by providing large halls in each school-building; have them perfectly ventilated and fitted with healthful games and gymnastic fixtures. Up to the ages of 8 or 10, the two sexes need not be separated at play. If the moral training at home is what it should be, and what we have reason to expect it will be, there will not be any mischievous effects following the mingling of boys and girls during the moments of recreation. The recess half-hour should, moreover, always be overlooked by a teacher, and a teacher should direct the channels of play, so that the exercise obtained out-doors may be as inductive to the body as the studies are to the mind.

Mental Hygiene for the School-Room.¹



It has been suggested to the *Notes* that a few plain and practical words on this subject will be profitable and timely, particularly as the qualifications for teaching in the public schools of the State are just now being determined and thereby prominently brought to public attention. Our friend, who makes the suggestion, thinks that the subject of physiological hygiene for the scholar is not given sufficient care nor thought by those who daily impart the elements of education to the growing child, and the *Notes*, in great part, agrees with

¹ From Florida Health Notes.

our correspondent. *Mens sana in corpore sano* is something more than a physically sound and active mental ability. It means, besides, a morally pure intellect, one in which the ambitions and desires of youth are stimulated and directed to lofty purposes.

The mind is the crowning glory of the human being, distinguishing and separating him from the rest of the animal kingdom, but if the products of the mind are not trained and guided in the right direction, this distinction becomes one in name merely and not in reality.

In the school-room equally as well as at home is this moral-mental training to the growing child of the utmost importance. The observant teacher can very soon discover the trend of mind of each scholar. In the very young, small things very early indicate the character to be dealt with and whether good or evil predominates. Such little things as slate pictures and writings passed from one child to another during school hours often tell the tale of moral rectitude or vicious inclinations, and the correction of the latter trait should receive more attention from the teacher than mere corporal punishment. The responsibility upon the teacher in this regard is far greater than we think is appreciated, for it involves a labor more tiresome and nerve-straining than the mere imparting of dates in history, describing latitude and longitude of places, or demonstrating problems in mathematics. It embraces the special duty of a problem of life in the case of training of each particular child, the satisfactory solution of which must decide the ability to lead the mind of the scholar in a direction which, besides promising a liberal literary education, will make and fit him to be a good citizen and a useful member of society. The duty of the teacher to the public and to the child does not end with the hearing of lessons or the explaining of subjects. The teacher's life out of the school-room should be an object lesson for the child to reverence and imitate, and it does have its influence. The school-room should also be filled with an atmosphere of purity and moral excellence so that the finer qualities of the mind may, in productive soil, fructify and blossom into a perfect manhood and womanhood. Children and young people in general are involuntary and wonderful expositors of the interior nature of those with whom they have to deal. In vain would a sour, morose-tempered person array his face in smiles and offer the most tempting baits to procure their favorable notice. It may be granted for the moment, in order to secure

some proffered pleasure, but honest instinct, long before intelligence is mature enough to define the nature of sympathy or antipathy, will prompt the recoil which unamiable tempers always suggest. As actually and rapidly also will these intuitive critics take the measure of the mind and the value of the principles of those who are deputed to govern them. You expect, Mr., Mrs., or Miss teacher (as the case may be), that your excellent precepts and instructions will be as earnestly and satisfactorily received by your pupils as they are delivered by you. Not a shadow of a doubt enters your well-intentioned imagination respecting their entire conviction of your being yourself as admirable and praiseworthy a person you are so strenuously recommending them individually to become, but be assured that if you are not at heart a lover and practicer of the principles you advocate, your exhortations will be to them as "sounding brass and tinkling cymbals." Not more surely does the sun radiate light and heat than the inner nature of the human being radiates its actual condition on all within its sphere.

Much more might be written on this subject, if space permitted, for that which is to benefit coming generations is both interesting and instructive, but in this as in all other matters connected with hygiene and sanitary relations of individuals to each other and to the public in Florida, the *Notes* aims to indicate mere hints and lines of thought which it hopes reflective readers will enlarge upon for themselves. To the teachers of the State, these ideas of mental hygiene are especially offered, and it is asked that each will determine and answer for himself or herself this question on instructing a child how far, in a moral sense, "Am I my brother's keeper?"

Prize for an Essay on Tuberculosis.

At the Denver meeting, just closed, of the Colorado State Medical Society, the following resolution, offered by Dr. Denison, was carried, and Drs. Charles Denison, H. A. Lemen, and S. E. Sally were appointed as such Examining Committee :

Resolved, That this Society offer a prize of \$100 for the best essay upon the following subject : "The Diagnosis of Tuberculosis by Microscopic Examination of the Blood."

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The Hygienic Aspect of Nervous Prostration.

THE late Dr. Dio Lewis, to whom we have more than once referred, was a very original man, and there was a world of wisdom in many of his original suggestions.

Upon one occasion, when he was consulted by a fashionable young lady who complained of being "utterly run down" and whose vital functions were much depressed, he regretted his inability to do her any good, because, as he said, he was quite sure that she would be quite unwilling to take the medicine that he would prescribe.

Being assured that she would take or do anything that would cure her, Dr. Lewis seized a prescription blank and wrote,—

R Bedibus nineoclockibus.
SIG.—To be taken every night.

The young lady asked, in amazement, what this jargon meant, and Dr. Lewis replied, "Oh! that is what we old foggy doctors write when we want our patients to go to bed at nine o'clock." "But I can't do that, because I have so many evening engagements," was the reply; "I will take any drug, but I cannot go to bed at nine o'clock." "So I thought," said Dr. Lewis; "I was sure that you would not take my medicine, and I cannot cure you."

That fashionable condition characterized as "nervous prostration" is, in the beginning, at least, rather a functional than an organic disease, but even when only functional, it may, and does, result fatally.

Let us suppose a city with electric wires and electric lamps, but no machine ; we are in darkness ; let us now supply a machine perfect in action ; the city becomes brilliantly lighted, and the degree of brilliancy will be in proportion to the integrity of the three conditions necessary for its production,—

(1) The machine.

(2) The conducting wires.

(3) The lamps, whereat the illuminating power generated by the machine is made manifest.

Let any one of these parts be imperfect and the result will be imperfect.

So in the human body we have the nervous system generating force ; the nerves conducting or transmitting it, and the various organs in which this nervous force becomes manifest and evident. Perfect organs, perfect conducting or transmitting nerves, and perfect generation of nerve force, mean perfect health ; any imperfection in any one of these parts or processes means imperfect health. A locomotive engine, fresh from the shops, ready for work, is a dead mass of iron and steel until supplied with steam, and if this steam be of inferior quality the work done by the engine is inferior, even though the machine itself may be perfect.

The human heart and the human stomach may be organically intact, yet unable to properly functionate, because of a deficient amount or inferior quality of nerve force.

What steam is to the machine of iron, nervous force is to the human machine. A young lady, a shining light in fashionable society, faints upon the least exertion, complains of pain about her heart, is a victim of dyspepsia, suffers with headache, is pale and wan-looking, unable to enjoy the society that she likes, because physically unequal to its exactions. There is no organic heart-disease ; the organ is sound, but its action is slow and labored and feeble. The organ is ready and capable of doing its work well, but it requires more steam. We examine the urine and find it enormously loaded with the earthy and alkaline phosphates, the ingredients of the nervous system,—the tissue that should have been engaged in the manufacture of human steam. We ask this young lady to whistle "down brakes" for a while ;

she has been consuming her principal ; and we ask her to curtail expenditures until the savings from her income will make good the inroads into her capital. She objects at first to "*bedibus nine-oclockibus*," but compromises on "*tenoclockibus*," we give her some drugs to *feed* the nervous system. No more faints ; she forgets that she has a heart ; the color comes back to her cheek and the lustre to her eye ; she gives up the use of tea and the dyspepsia vanishes.

" When the Devil was sick,
The Devil a monk would be ;
When the Devil got well,
The Devil a monk was he."

This young lady thinks herself well, but it required only one week of society life to convince her that she had not yet completely darned up the hole that she had made in her principal. She is a sensible young lady, you will remember, hence this warning is heeded ; she goes back to her routine, and she will soon be perfectly well. Is this an isolated case ? By no means. The eminent English authority, Dr. Pavy, asserts his belief that if the urine of every person coming out of an ocean bath was examined, albumen would be found in 95 per cent., evidencing a temporary congestion of the kidneys, which soon passes away. So, we believe, that if the urine of every society man and woman were examined during the height of the fashionable season, a great deposit of earthy and alkaline phosphates would be found in the large majority. The demands of fashionable society upon the nervous system ; the wear and tear are so great that this vital system is robbed of its power to generate sufficient steam of efficient quality for the maintenance of healthy life.

This condition, as already stated, is but functional at first ; it might be likened to the young man who, with an entailed estate, has spent more than his income ; he is temporarily embarrassed, but, by a little economy, he will come out all right.

But, when long continued, this functional derangement may, and surely will, eventuate in organic disease, incurable organic disease of the nervous system itself, or of some of the organs dependent upon it for steam.

Well, what of all this ; simply that it is our duty, and the duty of this journal, to unequivocally warn (though to no purpose, of course) humanity that fashionable society and health with longevity are incompatible. We know that we are cranks, and old

fogies and "*sticks*," and all that sort of thing ; we know it ; we admit it ; we won't argue the point ; but we also know that two and two make four, and nothing else ; and with equal mathematical certainty do we know that fashionable society means, or makes, a broken-down nervous system, organic disease, premature death, and invalidism while waiting for death. This is a free country, and, unfortunately, humanity is endowed with free will ; you can do what you please ; go ahead and do it ; but, when you reap the harvest, remember that you have only yourselves to blame.

American Public Health Association.

THE Twenty-second Annual Meeting of the American Public Health Association will be held at Montreal, Canada, September 25 to 28, 1894.

The regular sessions will be in Association Hall, Y. M. C. A. building, Dominion Square, opposite the Hotel Windsor. The following topics have been selected for consideration at this meeting :

- (1) The Pollution of Water-Supplies.
- (2) The Disposal of Garbage and Refuse.
- (3) Animal Diseases and Animal Food.
- (4) The Nomenclature of Diseases and Forms of Statistics.
- (5) Protective Inoculations in Infectious Diseases.
- (6) National Health Legislation.
- (7) The Cause and Prevention of Diphtheria.
- (8) Causes and Prevention of Infant Mortality.
- (9) The Restriction and Prevention of Tuberculosis.
- (10) Car Sanitation.
- (11) The Prevention of the Spread of Yellow Fever.

Upon all of the above subjects special committees have been appointed ; therefore all papers upon these topics should be presented to the appropriate committee in season to be incorporated as a part of the report of the committee, if deemed advisable.

The Executive Committee announces the following additional subjects upon which papers are invited :

- (12) On the Education of the Young in the Principles of Hygiene.
- (13) Private Destruction of Household Garbage and Refuse.
- (14) Disinfection of Dwellings after Infectious Diseases.

(15) Inspection of School Children with Reference to the Eyesight.

Papers will be received on miscellaneous sanitary and hygienic subjects, but preference will be given to the topics announced above.

All persons who purpose to present papers at the next meeting of the Association will be governed by the following By-Laws of the Executive Committee :

“(4) *All papers presented to the Association must be either printed, typewritten, or in plain handwriting, and be in the hands of the Secretary at least twenty days prior to the annual meeting, to insure their critical examination as to their fulfilling the requirements of the Association.*

“(5) If any paper is too late for critical examination, said paper may be so far passed upon by the Executive Committee as to allow its reading, but such paper shall be subject to publication or non-publication as the Executive Committee deem expedient.

“(6) All papers accepted by the Association, whether read in full, by abstract, by title, or filed, shall be delivered to the secretary as soon as thus disposed of, as the exclusive property of the Association. Any paper presented to this Association and accepted by it shall be refused publication in the transactions of the Association if it be published, in whole or in part, by permission or assent of its author, in any manner prior to the publication of the volume of transactions, unless written consent is obtained from the Publication Committee.

“(7) Day papers shall be limited to twenty minutes, and evening papers to thirty minutes each.”

Invitations extended to individuals to prepare papers for the Association do not imply their acceptance by the committee, merit alone determining that question.

The Local Committee of Arrangements has already commenced work to insure a large and profitable meeting. All communications relating to local matters should be addressed to Dr. Elzéar Pelletier, secretary Local Committee of Arrangements, No. 76 St. Gabriel Street, Montreal, Canada. Circulars will be issued in ample time, giving information relating to transportation and hotel rates, etc.

Blank applications for membership may be had by addressing

IRVING A. WATSON,
Secretary.



Purification of Water.

Alum has been regarded as one of the best means of purifying water, but Teich has found that it has no effect upon typhoid bacilli, and that cholera germs are destroyed only after the water has been treated with alum for at least twenty-four hours.

One Hundred Years Old.

Mrs. Elizabeth Jervis, of Amityville, L. I., celebrated her one hundredth birthday on July 20. Mrs. Jervis was born at Sayville, L. I., and was married in 1812, her husband dying in 1863. She has been the mother of eight children, seven of whom are still living; the oldest being seventy-eight and the youngest sixty-one. She has twenty-three grandchildren, thirty-eight great-grandchildren, and three great-great-grandchildren. She is in excellent physical and mental health.

Eczema of Nickel-Platers.

Dr. K. Groen records (*Norsk Magazin for Loegevidenskaben*) three cases of eczema of nickel-platers, which disease was first reported by Blaschko, of Berlin. They were all observed in young women, aged respectively 17, 19, and 30 years, who, for a time varying between one month to three years, had worked in a nickel-plating establishment. In two of them there were slight forms of eczema, with eczematous vesicles on the fingers and the lower portion of the forearms, and characteristic rhagades along the fingers. In the third case there was an abundant vesico-papular eruption along the forearms and on the face. The patient being again exposed to acid vapors in the process of nickeling, she was attacked again with an eruption on the forearms, and extensive œdema of the face, while the fingers were relatively but slightly affected. None of the cases resisted the treatment by compresses soaked in a solution of argentic nitrate, dusting powders of starch, and salicylate of zinc, or starch and the oxide of zinc. The

cedema was successfully treated by local applications of compresses wetted in a solution of the acetate of lead and boric acid.—*New York Medical Times*.

Loss of Hair.

In 100 cases of loss of hair reported by Dr. G. T. Jackson in *American Medico-Surgical Bulletin*, the following summary is arrived at :

(1) Men are far more prone to baldness than women, the proportion being at 65 to 35.

(2) Neither the married nor unmarried state exercises any influence in the production of baldness.

(3) It is probable that active brain-work and nervous mental strain predispose to baldness.

Physician to the Household of the Ameer.

Dr. Lilius Hamilton has recently gone to Kaboul to serve as physician to the harem of Abdurrahman, the Ameer of Afghanistan. She is to have a personal guard of six soldiers, three of whom will accompany her whenever she ventures out upon the streets of the city. The Indian government has sought to dissuade the young lady from what it considers her venturesome undertaking, and has warned her that she goes at her own risk, and that it disclaims all responsibility for whatever of an unpleasant nature may befall her.

Dampness as a Cause of Disease.

Dr. Ascher, a German sanitary officer, has been making a careful study of the relation to health of dampness in dwellings. It has long been known that damp houses are insalubrious, but exactly why has not been so well understood. The investigations which this physician has made seem to show that the unhygienic character of the damp dwellings is due, not directly to the dampness itself, but to the fact that the dampness gives rise to the development of various sorts of microscopic vegetable growths, by which the air is contaminated, and which may possibly induce directly some forms of disease in the human body. This author

insists that the walls of dwellings should be made of porous material, so as to prevent the precipitation of moisture on the inner surfaces. He advises that the walls should not be painted or varnished, but left so that they may be readily penetrated by the air, and thus kept dry.

Bacilli on Playing-Cards.

The Paris correspondent of the *British Medical Journal* says, "Dr. Rappon, of Nantes, has succeeded in detecting bacilli on playing-cards. He examined packs of cards used in phthysical wards, and perceived that Koch's bacillus was present more abundantly on the thumb-mark, a circumstance which he attributes to the bad habit of players moistening their thumbs before dealing the cards. On other packs used at cafés and in private houses bacilli were detected, but they were non-pathogenic.

The Dangers of the Barber-Shop.

The report of a case of tuberculosis of the bearded face will direct attention to the danger of transmission of tuberculosis through the intermediation of the instruments used by the barber. To prevent such an occurrence, each individual should have a separate brush and cup and napkin and razor. If one razor is used in common, it should not again be used before having been placed for a short time in boiling water and dried, while persons who present themselves to the barber with diseases of the bearded skin should be advised to consult medical men.—*Medical News*.

Effects of Weather on Scientific Work.

Dr. T. D. Crothers finds among brain-workers a settled conviction that many very powerful forces coming from what is popularly called the weather control the work, and its success, of each one. But the majority of persons fail to recognize the sources of error that come directly from atmospheric conditions on experimenters and observers and others. In his own case he has been amazed at the faulty deductions and misconceptions which were made in damp, foggy weather, or on days in which the air was charged with electricity, and thunder-storms were impending.

What seemed clear at these times appeared later to be filled with error. An actuary in a large insurance company is obliged to stop work at such times, finding that he makes so many mistakes, which he is only conscious of later, that his work is useless. In a large factory from 10 to 20 per cent. less work is brought out on damp days and days of threatening storm. The superintendent in receiving orders to be delivered at a certain time takes this factor into calculation. The psychology of the weather offers a new and interesting field for investigation.—*Science*.

Alcohol and Sunstroke.

The late Surgeon Parke, medical officer of the Emin Pasha Relief Expedition, wrote shortly before his death a "Guide to Health in Africa." In speaking of sunstroke, he says that he has met with comparatively few cases of it in his African service, and that "he has seen more cases of sunstroke occur during 'one field-day' at Aldershot than during seven years' medical experience in Africa." The immunity from thermal fever he attributes naturally to the use of precautionary measures, the most important of which is abstention from alcohol. "Drink," he says, "is certainly the most powerful predisposing cause of the development of the symptoms of sunstroke."

Bathing in Alaska.

In Alaska the method of taking a bath is somewhat heroic. Every trading post has a bath-house, and the people are supposed to avail themselves of its privileges once a week. A person accustomed to living in a milder climate would have a good deal of hesitancy about undressing in one of these places, as the temperature is always below zero. In an inner room an arch of stones is built so that a fire made beneath can penetrate. A trap-door in the roof answers for a chimney. After the stones have become thoroughly heated and the smoke has passed out, all the coals are removed and the trap-door closed. In this room stands a cask of warm water and another that is ice-cold. When the bather enters he pours hot water on the stones until the room is filled with steam; then, taking a seat on a bench, he waits till the perspiration streams from every pore in his body. Next he takes a bunch

of dried twigs and leaves, prepared for the purpose, with which he scrubs himself till all the impurities have been removed from the skin, following this with a wash-off in warm water and soap. He concludes his bath by dashing a bucket of ice-cold water over his body, and then rushing to the dressing-room, where, with his teeth chattering and shivering in every limb, he resumes his clothes.

Cremation.

Such has been the growth of popular opinion in favor of the sudden disposition of the dead by heat that there are now in the country eighteen incorporated cremation societies, and during the past ten years about 3000 cremations have taken place.

How Animals Practise Medicine.

It is known that animals not only treat themselves, but that they also treat each other. Animals get rid of their parasites by using dust, mud, clay, etc. When a dog has lost its appetite, it eats that species of grass known as dog grass, which acts as an emetic and a purgative. When cats are ill it is a matter of common observation that they eat grass. Animals suffering from chronic rheumatism always keep, as far as possible, in the sun. If a chimpanzee be wounded it stops the blood by placing its hands on the wound, or by dressing it with leaves and grass. A dog, on being stung in the muzzle by a viper, was observed to plunge its head repeatedly for several days in running water. Animals that have been injured in the eyes avoid the light and heat. It is also very generally known that when animals are ill they abstain from food; in fact, many times this is the only way the farmer knows that his horses and cattle are ill.

A Living Nuisance.

Judge Dixon, of New Jersey, in a charge to the grand jury of Paterson, a few years ago, said, "If a man, conscious that he carries about with him the germs of a contagious disease, recklessly exposes the health and lives of others, he is a public nuisance and a criminal, and may be held answerable for his conduct. If death occurs through his recklessness, he may be

indicted for manslaughter. It is held that where a person knowingly communicates a contagious disease to another and death results, the crime is that of manslaughter. . . . The man may be indicted also for spreading the disease by conscious exposure of others thereto by his presence in public places, such as on the streets, in halls, etc. He might be indicted as a public nuisance for endangering the public health in this way, even if no consequences had followed. The law provides some penalty for such offences against the public safety."—*Medico-Legal Journal*, Vol. I, page 394.

The Pope tries Hydrotherapy.

Father Kneipp, the German priest and preacher of hydrotherapy, was consulted, on the occasion of a recent visit to Rome, by Leo XIII. for the relief of certain ailments, due to advanced age, from which his Holiness is suffering. The Pope was advised to apply cold compresses to his knees and the back of his neck, and did so with rather disastrous results. He caught quite a severe cold, and both knees became so swollen that he was forced to call upon his own physician to combat the consequences of the experiment. Monsignor Kneipp is not thought so much of in the Vatican as he was.

The Health of London.

From 1700 to 1750 the death-rate in London was so high that the population stagnated. In the former year the inhabitants numbered 665,200, and in the latter year 653,900. During this period the deaths were in the ratio of about one per thirty persons living. By 1801 the population had crept up to 777,000, and the deaths had fallen to one in forty-one persons living. This great improvement in the state of public health in London was not, except to a trifling extent, the result of sanitary legislation. People were becoming more enlightened on many matters affecting their health, partly owing to a more general knowledge of chemistry, physiology, and other sciences relating to man and his surroundings. When those intrusted with the conduct of public affairs became aware how much the health of the people was affected by bad water, by foul emanations, and cesspools, and by

too great a density of population, they began to secure supplies of pure water, to construct proper house-drains and street-sewers, to remove systematically filth from houses, and to widen streets. The promulgation of the natural laws of health preceded the enactment of laws of health by the State. Jenner's discovery of prophylaxis in small-pox had for its corollary the vaccination laws. The chemical analysis of water was the basis of acts of Parliament relating to water and rivers.

Too much Method.

A methodical man died in Berlin recently, at the age of 73. When 18 years old he began keeping a record, which he continued for fifty two years, which is the best commentary we have seen on the life of a mere worldling. His life was not consecrated to a high ideal. The book shows that in fifty-two years this "natural man" had smoked 628,715 cigars, of which he had received 43,682 as presents, while for the remaining 586,021 he had paid about \$10,433. In fifty-two years, according to his book-keeping, he had drunk 28,786 glasses of beer and 36,085 glasses of spirits, for all of which he had spent \$5340. The diary closes with these words, "I have tried all things, I have seen many, I have accomplished nothing."

What Constitutes Pure Water.

So far as we are concerned, we would have no fear from drinking water that contained animals of the most frightful appearance as viewed from under a strong magnifying glass. It might not be pleasant to keep this thought in mind at the time we are drinking the water, allowing our imagination to wonder what these animals were doing while on their way down to the stomach, and how long they might remain alive there before being thoroughly digested; but so far as any harm coming to us, outside of this, we do not believe there would be the slightest danger. In fact, if we were given the choice of either drinking water which contained forms of life so large we might even see them with the unaided eye, or water free from these mastodonic forms and apparently clear, but which was taken from the neighborhood of cess-

pools, no physician would be long in deciding for the former. And yet the latter might not show a single form when viewed under a high power of the microscope. What we have to fear, of course, is the presence of the minute germs of some disease.—*Food.*

Stolen Grafts.

A man has brought suit in San Francisco for \$25,000 damages, for the loss of some strips of skin removed from his thigh and grafted upon the head of another patient in the hospital. He claims that the grafts were taken without his consent and knowledge, while he was under the influence of an anæsthetic, given, as he was led to believe, to save him from the pain of an examination that was to be made by the surgeons.

Anticholera Inoculation.

An Indo-European telegram states that within the previous few days three further remarkable instances of the success of M. Haffkine's system of anticholera inoculation had occurred at Calcutta. In the first case, four out of the six members of a family were inoculated last March. The cholera appeared in the neighborhood lately, and the disease attacked one of the two who had not been inoculated, while the inoculated remained free. In the second case, five members of a family consisting of eleven persons were inoculated in March. The cholera lately attacked one of the six who had not been inoculated. In the third case, six out of a family of nine were inoculated. When the cholera prevailed in the neighborhood a few days later the disease attacked one of the three not inoculated. The Corporation of Madras have passed a resolution inviting M. Haffkine to visit that city and introduce his system.

Measles in Samoa.

Dr. Davies, of Savaii, Samoa, writes to the *British Medical Journal* an account of the first invasion of measles into that island group. The disease was brought there in September, 1893, and in the following three months about 1000 of the entire population of 34,500 died from its effects. The epidemic was mild, and few

died during the period of fever and eruption, the great mortality being due to the sequelæ and complications. The deaths were principally from gastritis, enteritis, diarrhœa, and dysentery. A few died from suppressed measles. The craving the natives manifest for raw fish, unripe or over-ripe fruit, and especially half-cooked fresh pork, became morbid during the period of convalescence. Many, lest they should be told to avoid these, abstained from procuring foreign medicine. Nine-tenths of the deaths could have been prevented by care in diet, and even the worst cases of diarrhœa and dysentery yielded readily to treatment. Those patients who placed themselves under intelligent medical supervision, and who followed out the directions as to medicine and diet nearly all recovered.

Hygiene and Cosmetics.

Hygiene is a science of modern times. It has grown from small beginnings until at present it is the most important part of a physician's study. The aim of hygiene is to find out the most favorable conditions of human life, as well as the means of preventing disease. If we speak of the hygiene of a single organ or a group of organs, it becomes a matter of determining the conditions under which this organ can attain its most suitable and complete cultivation, so as to be of the greatest use to the entire individual.

By cosmetics we understand those means by which mankind undertakes to make his body, or any of its organs, pleasing to the eye,—that is, with the idea of being healthy and strong, on the one hand, and well formed and handsome on the other.

Any cosmetic which helps to improve and beautify an organ without injuring the health is helpful to hygiene. In other cases, however, although the desire to be beautiful is natural, the cosmetics used are injurious. Then the health suffers, and the cosmetic becomes a wicked enemy to hygiene. If one applies himself to a careful and scientific care of the skin, he must employ very important hygienic means. If one makes his head tender by continually wearing a covering which will not allow the air to come through, premature baldness will be the result. If one considers the normally-built human foot beautiful and has a covering made reasonably suitable to its shape, he fulfils a very important hygienic condition for good walking. If one considers

the pointed shoe handsome and forces his foot into it, this is a cosmetic, but by no means a hygienic measure. Crippled toes and corns are the result. We see, therefore, that hygiene and cosmetics stand in near relationship to each other, and should not be separated. Hygienic measures are dictated by reason; cosmetics by vanity. Naturally those hygienic measures will spread rapidly which serve the purpose of cosmetics, while hygiene is in a bad case when it must combat the temporary cause of injurious cosmetics.—Translated for *Public Opinion* from the German of Karl Rose, in the *Breslau Deutsche Revue*.

An Abiotic Region.

Analysis of the air, water, and soil of the Spitzbergen group of islands in the Arctic region shows an extraordinary poverty of bacterial life. While the air of the streets of Paris contains an average of 51,000 bacteria the cubic metre, that the Arctic Sea contains only three to the metre; and the water of Spitzbergen is not only devoid of any pathogenic micro-organisms, but is also entirely free from any kind of bacilli.—*Medical Record*.

Typhoid Bacilli Conveyed Through the Air.

Formerly the spread of typhoid fever through the air as a medium was regarded as a common occurrence, later this idea was no longer adhered to, as soon as it became known that a specific micro-organism was essential to the production of the disease, and that the agent could only be disseminated through the air in a dried condition. To-day the question has been again brought forward. Various experiments and observations have been made with a view to ascertaining whether typhoid bacilli are capable of being transferred through the air. Still, the researches thus far carried out lack two important considerations,—viz., first, the positive identification of the typhoid bacilli; and, second, the duration of their vitality in a dried atmosphere.

The author in his experiments fulfilled these conditions scrupulously, and arrived at the conclusion that typhoid bacilli are conveyed to the air in a dried state from garbage and clothing, and that the bacilli retain their vitality for from several days to two weeks.—Professor Uffelman, *Wein. med. Presse*.

Essentials in a Healthful Home.

The site for a house should receive careful attention of the tenant, purchaser, or of one proposing to build. A good site may mean life and happiness, and a bad one disease, suffering, and death.

(1) It should be dry. Avoid, as you would death, a damp location. In a town or city carefully ascertain whether or not it is on "made ground." Avoid it. Avoid ground underlaid with clay, for it will always be damp.

(2) Elevated on a hill-side or gentle knoll, never in a hollow. The hill-side is warmer and drier than the hollow.

(3) Not close to a swamp, slow river, mill-dam, or land which is overflowed a portion of the year, nor in such a place that the prevailing winds will bring to the house pestilence from a mill-dam, etc.

(4) In as good a neighborhood as possible, away from factories, saloons, etc., and near schools and churches.

(5) In a village or town build on as large a lot as possible, thus securing air and sunlight. Build back from the street, thus avoiding the dust of the dry season and the curious gaze of every passer. Secure a yard in which trees and plants will furnish both exercise and health.

(6) In the country build back from the highway, giving an abundance of room for trees and shrubbery about the house. Do not select a place where your family will be isolated from all social intercourse, so necessary to the health of mind and body.

For the aspect, let the house be so placed that it will receive the most sunlight and fresh air, especially from the summer winds. Avoid, even if offered rent free, a damp, dark house, with no chance of the free air of heaven to sweep through it. If the house is only one room deep, it does well to face it to the south or southwest; but if it is two rooms deep, those on the north side never receive any sunlight, and are apt to be damp. For a double house it is the best to face to the east. Then the morning sun will warm up the front and the afternoon sun the rear of the house, and thus all the rooms will be bathed in light and warmth. The living-rooms should always be warmed by the morning sun. This hint is worth a great deal as a health matter. For when the sun cannot enter, the doctor must enter. If the cold winds from the north and west are severe in the winter, they may be broken

by a cluster of evergreen trees planted on those sides. In country places a good aspect should be secured without reference to facing the house square with the street.—*Pacific Health Journal*.

United States Postal Laws in Respect to Infectious Diseases, Epidemics, etc.

SECTION 667.—(1) A postmaster should refuse to receive into his office mail matter brought to it by persons who are inmates of, or messengers from, houses containing cases of contagious diseases, such as small-pox, yellow fever, etc., when ordered to do so by a board of health, or other local authority having jurisdiction of matters affecting the public health. If there be no such organization or official, the postmaster should be governed by the advice of one or more reputable physicians.

(2) Mail matter arriving at an office addressed to the inmates of such houses may be sent to them by the hands of some responsible person known to the postmaster.

(3) When a board of health serve upon a postmaster a certified copy of a declaration or order duly made that mail matter from any other post office is liable to communicate a contagious disease prevailing at the time, he should refuse to receive such mail matter from any carrier or messenger, but will deliver to the carrier or messenger a copy of such order or declaration, and will report the facts at once to the First Assistant Postmaster-General. If there be no board of health, the same action may be taken by the postmaster upon the declaration of a regular county or city medical society, or, if there be none, upon the advice of a physician reputable in his profession. The mail so returned shall be held until the prohibition is removed, and shall, after being properly fumigated under the directions of the medical authorities, be despatched to its destination.

(4) If a case of small-pox, yellow fever, or other contagious disease occurs in the family of a postmaster occupying a building in which the post-office is kept, the postmaster should notify his sureties to take possession of the office and conduct it temporarily elsewhere until the danger of contagion is passed.

(5) When blanks, books, and supplies of a post-office become infected, so as to render them liable to communicate small-pox or other contagious disease, permission will be given to burn them,

upon application being made to the First Assistant Postmaster-General, Division of Post-Office Supplies. The postage stamps must be carefully counted in the presence of two disinterested witnesses, a statement of their classification and amount sworn to and forwarded, together with the letter authorizing said destruction of supplies, to the Third Assistant Postmaster-General, Stamp Division.

“Sit Erect.”

The *Monthly Bulletin* of the Rhode Island State Board of Health has the following sensible article on the above-named subject :

More attention is now given to the position of school-children while seated at a desk than in former years. As the child advances in school grade, or in later life, this is in a measure forgotten until a stooping habit is formed. It is sufficiently well known by every one that this stooping position results in diminished expansion of the chest, and that the position is one which produces an excessive supply of blood in the head, and consequent congestion of the organs of vision, which in time leads to defective eyesight.

It is often stated that it is necessary to lean forward to accommodate the eyes on account of defective sight. This is erroneous, for the abnormal condition present will only be increased in this way, and the chances are that, if the work had been brought to the eyes earlier in life, instead of the eyes and body brought to the work, the eyesight would not have been originally impaired.

Many clerks at their desks, and children at school, are inclined to lean against the desk, and there are very few persons at the present time who, when sitting in a chair which will permit of a level seat, can sit for a very few moments even, as our grandparents did, in a perfectly erect position.

Round shoulders are not becoming to either sex, and are neither pleasing to the eye for form nor favorable to the functional activity of the organs of breathing. Some may say that it is impossible for them to sit erect ; that it tires them too much ; or that they have sat in that position so long that it has become an established custom, and has existed too long to be corrected.

Let any one who has this idea try the experiment of sitting

erect with the shoulders thrown well back, the head tipped backward. Then take a deep, long, slow inspiration and fill the lungs with air, holding the breath for a moment, then letting the chest slowly fall back to its normal position of expiration.

If this exercise is repeated several times during five minutes, three times a day, for a week, the experimenter will find there is much more comfort to be found in sitting upright than the old position of a half stoop. It will be found that a new habit has been formed, which will readily assert itself without thought, and that it is less tiresome than to sit in a collapsed position.

Beneficial Consequences of Absence of Cow's Milk in Japan.

Dr. A. S. Ashmead calls attention to the influence of the absence of cow's milk in the dietary of the Japanese. But very few domestic animals are seen in Japan; only the poultry and dog break the silence of the country. In consequence of this, mothers are forced to nurse their own children, for artificial lactation is practically unknown in that country. Children nurse up to the sixth year, and you may hear them ask for the breast in language as correct as that of the adults. Mother's milk is not the only article of food for the little Japanese; river fish enter into a large part of their diet, and the first year some other elements of general alimentation are added to their bill of fare. But the mother's milk is their *plat de resistance*. Nature has endowed this notable mother with peculiar advantages. Menstruation returns only a year and a half after childbirth. The husband and the whole household pay her particular attention. The principal food of the mother, besides the everlasting rice, is fish, shell-fish, sea-weeds, and other products of the sea. No wine or beer enters into the diet of the nursing women. The great reward reaped is an absence of rachitism. All observers have remarked this. There are no deformed pelvises; the labors are all easy, and the very small percentage of deaths from abnormal labors. Nursing by the mother transmits racial immunities; the iodized diet from the sea-weeds, fish, products, etc., the fats and oils of fishes have for centuries formed to build up a racial resistance to their national inheritance, syphilis and tuberculosis. The higher classes develop tuberculosis by close intermarriage, and the lower orders are immune. The Japanese do not kiss, for it is forbidden, as it

might transmit tuberculosis or syphilis. Again, by not drinking cow's milk, they escape the polluted water from the rice plantations, swarming with typhoid-fever germs and the distoma.—*The Sei-i-kwai Medical Journal*, No. 4, 1893.

Dust-Diseases and their Prevention.

The relation of dust to pulmonary affections is a subject the investigation of which has already led to many valuable practical results, and which is still far from being exhausted. Dust of a non-irritating nature is necessarily inhaled into the lungs of town-dwellers, where it causes the dark and mottled aspect so familiar on the post-mortem table. The irritating dust, on the other hand, which is encountered in many occupations, leads to more or less serious pathological conditions of the pulmonary organs. Thus it may cause bronchitis, acute and chronic, emphysema, asthma, bronchiectasis, fibroid conditions, hypertrophy of bronchial glands, and phthisis, with a whole chain of attendant vascular disturbances. These dust-diseases, or pneumokonioses, are met with, as every one knows, among millers, masons, miners, grinders, and others who follow occupations which habitually expose them to a dusty atmosphere. This injury is, in the first place, mainly mechanical, and usually has a direct relation to the texture of the material which furnishes the dust. In this way steel particles are more deadly than stone, and the latter than flour. In other cases the injury to workmen is partly mechanical and partly chemical, as in the lead-enamel grinding trade. So much for the evil, which is obvious enough, and needs little more than the above passing reference. A great deal more discussion is wanted, however, when we inquire as to what has been done in the way of prevention. The two great preventive measures are undoubtedly free ventilation and the introduction of wet processes. It is a well-known fact that the substitution of wet for dry grinding in Sheffield was followed by a great fall in the number of deaths from phthisis. A similar principle might be applied with advantage in other trades. For instance, the dust raised in grinding lead-enamel is of a peculiarly deadly nature, since it acts both as a mechanical and a poisonous irritant. Lead-enamel is practically insoluble, and there is no doubt that many of the steps in its manufacture could be carried out equally well by elutriation and other wet methods.

Ventilation, again, is often defective in the enamel factories. The beneficial action of a free circulation of air is probably due to the dilution and the removal of noxious particles. Nowhere has the improvement of ventilation been followed by better results than among our mining population. To take a single instance: it has lately been officially reported that in the mining division of Cornwall the proportion of deaths from phthisis, or "miners' disease," has of late years decreased. This satisfactory result appears to be due chiefly to the better underground ventilation, consequent on the introduction of boring machinery, and of other improved conditions. Some years ago the whole question of miners' phthisis was closely investigated by the Royal Cornwall Polytechnic Society, who offered prizes for sound information, and obtained a quantity of valuable matter, which is to be found in their annual reports of that time. This public-spirited action affords an excellent illustration of the good that can be effected by local bodies, if they will only be content to confine their scientific ardor to subjects at their feet, so to speak, and within the grasp of an average comprehension. Conducted on such lines the work of provincial associations is likely to afford substantial help in arriving at precise facts and figures with regard to dangerous employments. They will be also in a position to acquire exact information as to methods, and to suggest improvements in trade processes. Their data would then be simply invaluable to the scientific man, in whose hands the application of preventive measures must ultimately be placed. When thoroughly sound conclusions have been arrived at, it is the duty of legislators to frame laws in accordance with the facts submitted to them. It is a well-marked tendency of modern legislation to make compulsory all measures that have been shown to be clearly preventive. Bearing this in mind, one may safely assert that the compulsory legislation of the future will find a large and useful field, so far as the happiness of many members of the community is concerned, in the control of dust-producing occupations. Whatever may be done, it is unlikely that the whole of the mischief could be abolished in each particular trade. The risk, however, could and should be reduced to its minimum. The steady aim of the sanitarian in dealing with dust-diseases will be levelled at the preventable margin, and he will not fail to make due allowance for the unavoidable residuum.—*Medical Press.*



Michigan State Board of Health, Lansing.

THIS was the annual meeting. A brief address was made by the president of the board, who congratulated the members of the board on the fact that, "During the last year the State Board of Health has done much good work, including that in connection with quarantine and the prevention of the introduction into Michigan of dangerous communicable diseases. The board has entered upon a most important work,—for the prevention and restriction of tuberculosis in man,—and I believe that the results will be great. This board has taken the lead of other State Boards of Health in declaring consumption to be 'dangerous to the public health,' and has recommended advanced measures for its restriction. At this meeting committees are to report upon two other measures of restriction which it is believed will prove to be exceedingly important."

There were present at this meeting: Hon. Frank Wells, president, Lansing; Professor Victor C. Vaughan, M.D., Ann Arbor; Professor Delos Fall, M.S., Albion; Mason W. Gray, M.D., Pontiac; Samuel G. Milner, M.D., Grand Rapids; and Henry B. Baker, M.D., secretary.

The minutes of the last quarterly and two special meetings were read, the auditing of bills and accounts, and other regular business was transacted.

It was voted that the State Board of Health hold this year another conference of Michigan Health Officers, at Ann Arbor, sometime in June. A committee of three, of which Dr. Vaughan is chairman, was appointed to make arrangements for that conference. Last year a useful conference was held with special reference to cholera. That subject is still of interest, and dangerous immigrants are still coming into Michigan. But it is proposed this year to give special attention to that disease which is already here and causes most deaths,—consumption,—and to give the health officers opportunity to study the subject at the State Laboratory of Hygiene, where the bacteriological and other facts relative to the causation of this disease can be so well demonstrated.

The subject of tuberculosis in animals as a cause of tubercular diseases in man was presented by Dr. Milner by a resolution at the Menominee meeting, directing the secretary of the board to institute an investigation of the cattle and milk in different parts of this State, and report in what way and to what extent the health and lives of the people are endangered by tuberculous meat and milk. The resolution was then referred to Dr. Mason W. Gray, the "Committee on Animals' Diseases Dangerous to Man," with request to report at this meeting. Dr. Gray reported that he had conferred with veterinary surgeons in Pontiac and Detroit, had visited the health department in Detroit for conference, that a few months ago he had corresponded on this subject with the three members of the State Live-Stock Commission, and he read extracts from the several letters. Hon. J. J.

Woodman had said that the presence of tuberculosis in animals is not being reported to the State Live-Stock Commission. Dr. Barringer had expressed the hope that this board would investigate the subject thoroughly. Dr. Gray believed that the State Live-Stock Commission would co-operate freely.

Dr. Baker said he had conferred with the State veterinarian, who advised further and personal conference by this board with the State Live-Stock Commission. Dr. Baker read from the last report of the commission relative to tuberculosis, "It is beyond question both infectious and contagious, particularly in the pulmonary development or consumption of the lungs. . . . Years of added experience and careful observation lead us to the conclusion that the annual losses among Michigan cattle from tuberculosis are much greater than from all the other contagious diseases affecting our domestic animals, and that the disease is steadily increasing. We have given the subject very careful thought and consideration, and have as yet failed to find a satisfactory plan for its treatment or extermination. . . . It, as yet, is one of the unsolved problems, lying all in front, and like some bridges in our pathway, the day is not far distant when an attempt must be made to cross." Secretary Baker thought that now is the time to make the attempt to "cross the bridge," and earnestly hoped that the State Live-Stock Commission would co-operate in the effort for the restriction and prevention of tuberculosis in animals and in man. It was voted that the president be requested to call a special meeting of this State Board of Health at such time as arrangements can be made for a joint meeting with the State Live-Stock Commission, to consider the subject of the restriction of tuberculosis in animals and in man.

As chairman of the "Standing Committee on Epidemic, Endemic, and Communicable Diseases," Professor Vaughan made a report on the subject of the restriction of tuberculosis in man by means of a proposed State Hospital for Consumptives, this subject having been referred to him at the last special meeting. The subject was discussed at great length, and resolutions were adopted as follows:

Resolved, That we recognize the following facts:

(1) That tuberculosis is the most grave and fatal disease now affecting the health and lives of the people of this State, destroying about 3000 lives per year.

(2) That this disease originates principally by transmission from man to man or from man to animals and again to man.

(3) That the spread of this disease can be best arrested by the disinfection of the sputa and other discharges, by special supervision of those infected, and by the care of such persons under conditions which will prevent the transmission of the disease to others.

(4) That such disinfection and supervision cannot be carried out in the crowded homes of the poorer classes; and

(5) That under conditions which will prevent re-infection, many consumptives may be permanently cured, and returned to their homes and work, educated in the methods of restricting the disease. In view of these facts,—

Resolved, That this board request of the next Legislature an appropriate

tion for the purpose of building, equipping, and maintaining a State Hospital for Consumptives.

Professor Delos Fall presented a preamble and resolution which were adopted as follows :

WHEREAS, It is desirable that every step taken shall tend towards giving the largest amount of sanitary education to the teachers and to the people of the State, therefore,

Resolved, That it is the judgment of this board that the proposed State Hospital for Consumptives should be located at the seat of the State University at Ann Arbor, in order that it may afford the best opportunities for the observation and study of this most important disease, in conjunction with the investigations now being so satisfactorily pursued in bacteriology and other departments of sanitary science, at the State Laboratory of Hygiene.

Compared with the average in the corresponding quarters in the eight years, 1886-1893, the reports from regular observers indicate that intermittent fever, remittent fever, erysipelas, diarrhoea, consumption, pneumonia, and pleuritis were less than usually prevalent, and that no disease was more than usually prevalent in the first quarter of 1894.



Security against Imposition.

THIS heading is suggested by and is particularly applicable to the new advertisement of the Antikamnia Chemical Company, which appears in this issue. Antikamnia, while not suffering anything like other standard preparations from substitution, has still found it in some few instances. To the end, therefore, that there may not be even the breath of suspicion against Antikamnia, as well as to give every doctor the fullest confidence, the company has gone to the expense of withdrawing all the old stock from the market and replacing it with new. In the new form the drug is identically the same chemically and medicinally as it always has been, but every tablet bears imprinted upon it a monogram. (See advertisement.) Every package of Powder or Tablets is so wrapped and sealed and resealed as to render counterfeiting impossible. The entire profession should insist upon the safeguards provided, and there can be no question but that this action will be regarded with great favor by them.

The latest edition, "Antikamnia and Codeine" tablets, can be obtained direct, or from your druggist. Each tablet contains $4\frac{3}{4}$ gr. Antikamnia and $\frac{1}{4}$ gr. Codeine.

Good Authority.

Dr. Ezra A. Bartlett, Lecturer on Electro-Therapeutics at the Albany, N. Y., Medical College, is well known not only in the line of electricity in its relation to medical work, but also as a firm believer in sanitation and all that tends to the prevention of disease.

"The time has fully come," he states, in a recent article, "when prevention is the highest and most important aim and work of the true medical man.

"Nothing is more effectual along this line than thorough disinfection, and with so efficient, so handy, so clean, and so cheap an article as Platt's Chlorides there is no excuse for not having every case of contagious or infectious disease strictly limited, every foul place made clean, and every disagreeable odor removed.

"Our experience with this article is a continued history of success, and speaks louder than any words can do."

"Compound Talcum Baby Powder." The Hygienic Dermal Powder for Infants and Adults.

Talcum, the Silicate of Magnesia ($4\text{MgO} \cdot 5\text{SiO}_2 + \frac{3}{4}\text{HO}$), although known in olden times as far back as 2200 years ago, when that immortal Greek scientist and naturalist, Theophrastus (370–286 B.C.), in his venerable work on "Stones," described it, was, up to the present days, entirely overlooked by therapeutists and never used by dermatologists. Strange to say, only in the year 1868, it was the good fortune of the writer to be induced by peculiar circumstances to make researches in the pharmaceutic realm for a dermal application which might be acceptable to the medical profession in the treatment and prevention of skin affections. In these researches Talcum was also experimented with, which proved to be the very substance looked for. Further investigations showed that, with the addition of carbolic acid, a preparation was produced most efficacious in preventing erythema intertrigo and in curing the same in very severe cases.

Besides, the "Compound Talcum" is indicated in cases of minor Exanthemata,—viz., urticaria, roseola. In Papulæ,—viz., lichen simplex, lichen tropicus, strophulus, etc. In Vesiculæ,—eczema, herpes, crusta lactea. In Pustulæ,—viz., ecthyma, impetigo. And, further, in Dermatopathia of parasitic origin,—viz., scabies, favus, sycosis, tinea decalvans, tinea circinata, chloasma versicolor. And, lastly, in the treatment of Exanthemata Majores and zymotic diseases.

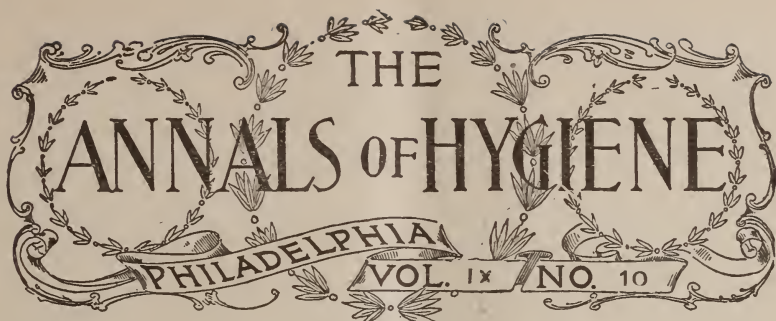
Refraining from producing any testimonials, the writer deems every physician perfectly able to judge for himself of the therapeutic value of the Compound Talcum.

Respectfully,

JULIUS FEHR, M.D.,

Ancient Pharmacist.

HOBOKEN, N. J., June, 1894.



COMMUNICATIONS.

A Plea for Christian Burial.

BY W. THORNTON PARKER, M.D. (MUNICH),

Member of the Society of Hygiene, France,
Groveland, Mass.



THE details of a recent cremation at Forest Hills appeared in one of the Boston papers. To many people such an account was positively shocking. Antisentimentalists may sneer at those who cannot read such an account without a shudder. In spite of anarchy, sentiment, which is the root of all virtue, still survives, and will not perish without a brave struggle for existence.

In the individual, in the community, or the nation, where sentiment is dwarfed or destroyed, disaster is bound to follow with the full fruit of anarchy as an object-lesson for all time.

Looking back from the history of the world, we find this truth conspicuously apparent in the nations which have had their fall.

The newspaper is capable of being a serious foe to genuine prosperity in village, town, or country. It is not a sufficient excuse for the publication of the details of murder and crime in general that the public wish to read about, and therefore it must be published. The majority of men and women do not wish to read these details, and they particularly object to having them spread before their sons and daughters daily. The details of crime and violence exert a hardening and injurious influence upon the public. Familiarity with violence tends to teach violence.

Indifference to sentiment tends to anarchy. Cruelty tends to murder ; absence of reverence for the dead tends to irreligion. An irreligious community is a reckless, restless congregation of lost souls. Reverence for the dead, gentleness and consideration for those in affliction are the attributes of true manliness, and are the natural impulses of heroic hearts.

To read the following extract from the paper already referred to is to receive a painful impression, and to feel that public sentiment is either becoming decidedly cruel, or that some method should be adopted to stamp with disapproval the unrestrained and misdirected fad called, politely, "cremation."

"Opposite the iron door through which the coffin was admitted in the engine-room is an aperture in the brick walls about six inches in diameter. This aperture is covered with a small iron door which swings on a pivot, and in this small iron door is a still smaller aperture about three-quarters of an inch in diameter. One after another the witnesses of the cremation look through that tiny hole. They can see the process of cremation as plainly as though it were before them on a stage.

"A few minutes—not more than ten—after the coffin was put in the retort, its woodwork crumbled in, but there was no unpleasant revelation. The flesh of the body had been consumed before the wood, and the outline of the body could not be traced with the eye. The white skull, as it lay on the end of the retort, near the peep-hole, was plainly visible.

"As soon as the woodwork of the casket crumbled, the crackling sound ceased. The flames raced across and beneath the retort like mad demons doing work that years of slow decomposition in the ground could not accomplish. In half an hour the white skull had become detached from the frame, and rolled over to the left of the retort, and yet even in this sight THERE WAS NOTHING OFFENSIVE to the most delicate tastes of any of the observers.

"Indeed, the members of the society, many of whom are prominent business men in Boston, do *not waste sentiment* when speaking of the disposition of the bodies in their preferred way. 'What is the use of saving the ashes at all?' asked a member of the reporter this morning. 'You know one man, an actor, I believe, took the ashes of his wife to the top of the statue of Liberty, in New York harbor, and scattered them to the four winds. *He was sensible.*'

"Another prominent member said he didn't want any one to

put his ashes in an urn to save them up for future generations. 'Why,' he said, 'I don't want my ashes taken from pillar to post and finally hidden away in the attic of my house for people to fuss over.'"

This is being truly sensible. Now we know !

"From time to time the relatives and friends peeped in through the aperture and appeared thoroughly satisfied with the action of the flames. The frame was outlined by the whitened ribs !

"The whirring sound continues. The friends chat. At three o'clock seven ribs stand straight out of the black mass of crumbling ashes like so many white pipe-stems. Faster and faster flit the flames. Faster crumble the fast-disappearing remains. Now and again the engineer turns a valve or twists a screw, and the oil supply is regulated.

"At 3.41, exactly two hours and ten minutes after the casket was put in the oven, the flames from the burners were shut off."

"LAWS GOVERNING CREMATION.

"Through the peculiar instructions of a lady regarding the disposal of her remains after cremation, attention has been called to the many formalities required by the law in cases of this kind. Her request was that she should be cremated, and her ashes be strewn about the grounds of the house in New Hampshire in which she was born. A permit from the board of health was necessary for the conveyance of her body to the cemetery, and another permit had to be obtained for its removal to the crematory. Before it could be deposited in the retort, it had to be viewed by the medical examiner, and his approval obtained for its incineration. To carry out the request of the deceased, a regularly licensed undertaker had to be retained to make application to the board of health for a permit to remove the ashes from the State, as the board would not otherwise grant a permit. After complying with all these requirements, the remains were disposed of as the deceased had requested."—*Verb. Sap.*

Here we have the *cremationist's creed* in full sight.

Undoubtedly, many noble men and women have unselfishly given a reluctant approval of cremation, thinking that by so doing they are accomplishing some good for the betterment of succeeding generations.

A few isolated cases of careless burial have been exaggerated

until the alarmists have succeeded in forcing some very sensible people to believe that cremation is the only sensible and practical method for the disposal of the dead.

Our best authorities on hygiene, and our foremost sanitarians, agree with Dr. Stone, who says, "from a purely bacteriological stand-point there is no evidence that a buried body is a source of special danger to the living." Dr. Abbott states that a dead body, properly disinfected and incased in a lead coffin, and carried to the grave without unnecessary delay, would be of no danger to the living, neither, in his opinion, is there any danger of the escape of disease-germs sufficient to be of danger to the living. The fear that any water-supply would become contaminated because of the drainage from dead bodies is unreasonable.

Pettenkofer and other distinguished scientists have formulated rules for the disposal of the dead, which make burial in every way more desirable than cremation, and do away with the outrage to religious sentiment, which is so keenly suffered by many in witnessing cremation.

Dr. W. W. Parker, of Richmond, Va., has published a very valuable pamphlet on "*Burial versus Cremation*." In it, he states that there is no proof that the health of a city is damaged by the proximity to a graveyard. The turning up of the earth in grave-digging may, at a certain season, be injurious; but this is too small a factor for serious consideration. The digging up of our streets in summer is more often a cause of disease. It is hardly possible that any damage can come of exhalation from a body six feet below the solid earth. "There is certainly no proof that such is the case. I have for years attended families living near large cemeteries and have not found them more sickly than other people."

Dr. Parker sums up his conclusions as follows:

(1) For the great body of mankind, Christian burial is more convenient and economical, or may be made so, and can never be substituted by cremation.

(2) That it does not so violate the natural sentiment whereby we cling to every vestige of the body in which dwelt the soul of the dear one, even to the very garments they wore.

(3) Christian burial keeps alive the sentiment of affection, in that we know the exact spot where the body lies, and where it will rest till judgment day.

(4) This mode of burial is eminently Christian, and was

practised by Abraham. Indeed, it is a Christian rite, inseparable from our faith; and, since there is no other religion worthy of the name but the Christian religion, it is our duty to respect this ancient Christian custom.

(5) The crematory urn may at any time be lost or destroyed. Unless in a vault, its existence would be a thing of a few years; and who can bear the thought that the ashes of his wife or child should be made the sport of the wild winds?

(6) Christ has by a sort of implication, at least, predicted the common mode of burial as perpetual when he says, describing the last judgment, "All that are in their graves shall hear the voice of the Son of Man and come forth."

(7) That much of the holy inspiration of noble lives and sacred tombs would be lost to the living by cremation.

(8) That both instinct and reason teach that the earth is the proper receptacle for the dead.

Concerning cremation, the editor of the *New York Medical Record* thus disposes of the whole matter, while voicing the sentiment of many of our ablest hygienists.

"THE MILLENNIAL OF CREMATION.

"The success of a particular form of mortuary disposal is a curious thing to celebrate. The cremationist, however, has always been something of a sentimentalist, and he has naturally felt warmly, even superheatedly, regarding his pet process. A cremation company in this city recently celebrated its one-thousandth combustion. We do not know the exact nature of the celebration, except that there were speeches and flowers; the customary addition of champagne and a cold collation was probably admitted.

"There is no doubt that the agitation over cremation has done some good by calling attention to the possible dangers of cemeteries.

"The actual danger of the cemetery and of earth burial, however, has never been demonstrated. It will be quite possible to bury a person safely for many years to come."

Scarcely an instance, says Bengless, is "known of any one having witnessed the process as thus conducted, who has not at once become a pronounced convert to cremation, whatever may have been his pre-existing prejudice."¹

¹ Article on Cremation in Reference Handbook of the Medical Sciences, Vol. II.

This is a deliberate falsehood. It would require very little space to refute this slander. No man or woman possessing normal religious sentiment can witness the dreadful process called cremation without a shudder.

Cremation is capable of exerting a very harmful social, moral, religious, and physical evil. This is the belief of many men of wisdom and intelligence, who are as worthy of recognition as the few who so enthusiastically oppose Christian burial. As we stand at the awful brink of the grave which typifies the portal of that great undiscovered country, the Christian remembers the words of the divine Creed, "And I believe in the resurrection of the body."

In an admirable paper, published by Dr. Haden, concerning the rational and sanitary disposal of the dead, he arrives at the following conclusions :

(1) That owing to the one-sided statements put forth by the cremation societies, a very general impression has been created that there is only one kind of burial and only one remedy for it, —cremation ; a statement which is entirely misleading.

(2) That this belief has been greatly assisted by the systematic suppression on the part of an influential portion of the press of all effectual answers to the cremationists' statements, and that in this way the country has become flooded with these unopposed statements.

(3) That while burial properly conducted is a complete and perfect process, leaving no residuum behind it, cremation is an uncomplete and imperfect process, leaving a considerable and very embarrassing residuum behind it,—a residuum equal in bulk and weight to one-twentieth part of the whole body, and for the disposal of which it makes no provision whatever.

(4) That while the earth properly used is capable of disposing of any number of dead bodies and of disposing of them insensibly and with advantage both to its own substance and to the air above it, the practice of cremation large enough to have even the slightest influence on burial either as a rite or as a custom, supposes the necessity, not of one, but of many furnaces with tall chimneys, the use of which in towns no municipal authority in its senses would for a moment permit ; and which in the open country would cause such a consumption and carbonization of pure air as to render a large area in the neighborhood of such chimneys uninhabitable.

(5) That the statement that burial, however conducted, is a propagator of infection and a cause of increase in the zymotic death-rate is absolutely without warrant and abundantly disproved by expert evidence from all parts of the country.

(6) That bacteriology, so far from being adverse to burial, is distinctly in favor of it.

(7) That the natural destination of all organized bodies that have lived and that die on the earth's surface is the earth.

(8) That the principle of burial supposes the resolution of the body by the agency of the earth to which we commit it, and that the earth is competent to effect that resolution and to effect it innocuously.

(9) That the destruction by cremation of all demonstrative evidence of the cause of death—that is to say, as is only to be obtained by the exhumation of the body—is a danger to society, and an arbitrary act on the part of an irresponsible body of persons, which ought to be at once made the subject of competent investigation, and if its dangerous character is recognized declared illegal.

In a paper published by Dr. W. L. Buchler, of Ohio, the following conclusions are stated: Careful and frequently-repeated experiments of Hoffman, Schottelius, and Esmarch, have shown that active bacteria, deposited in a grave, will, in a rather short time, lose their activity and become inert.

Numerous experiments have been made with human corpses in which the pathogenic micro-organisms were found before burial, and all these investigations are unfavorable to support the opinion that pathogenic microbes contained in a cadaver, and with it deposited in the grave, are in any way dangerous to the health of the surrounding community. The period of the activity of such germs depends upon the material of the coffin and the condition of the soil. But all pathogenic microbes become inactive long before the process of decomposition of the corpse is ended. Some pathogenic bacilli die for want of oxygen; others have not the necessary amount of heat or the sufficient nourishing material, and the bacteria of putrefaction will soon outgrow all pathogenic germs and the latter will perish. The certainty that pathogenic bacilli cannot remain active any length of time either in the soil or ground-water shows that there need not be any fear of the distribution of these germs to neighboring wells or springs. Loose gravel could undoubtedly carry ground-water full of bacteria a

short distance, but still the filtering power of such soil is so great that it would free the water from such germs, so that they could not be found in wells or springs a few yards distant. Old cemeteries, where for years no bodies were buried, are free from all danger, as the pathogenic germs have long ceased to be active.

Should bodies be buried in soil saturated with water, no fear of pollution of ground-water need exist, as Esmarch has shown by careful experiments, that in such cases the germs will die sooner than they will in dry soil.

Pettenhofer, Hofman, Seluri, and Brieger have shown that the products of putrefaction, including ptomaines, toxines, poisonous albuminoids, and peptones, are no source of danger of polluting wells even in close proximity. These poisonous products become so diluted by ground-water or neutralized by the soil, or by the action of the saprophytic bacteria, changed so quickly in smaller molecules, such as carbonic and nitric acid, ammonia, etc., that they are not dangerous.

The gaseous products of putrefaction cannot have a detrimental effect on health, and although the smell frequently encountered in morgues and vaults is a decided nuisance to sensitive nostrils, it cannot cause disease.


The contamination of the air by pathogenic germs from graves is out of question. Careful examinations of the soil around coffins to a distance of eighteen inches have not shown any disease-germs, so that it is very improbable that they reach the surface of the grave, and if they should, they would do no harm. Bacteria cannot rise from their own accord, and even the strongest draft of air cannot separate them from underlying strata, the soil has to be completely dry and converted into dust, then the wind may carry the bacteria off with that dust. But as the micro-organisms very soon become inactive in such a dry state, they could not cause any harm.

After a careful perusal of the subject, I have come to the conclusion that properly-located and well-managed cemeteries are not liable to create any unsanitary conditions in their neighborhood.

Cremation as a Means of Practical Sanitary Reform.¹

BY CHARLES P. KING, A.B., M.D.,

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T is a trite saying that a man is never really appreciated until after he is dead. One of the idiosyncrasies of our common nature is that we seem to have more consideration for a man after he is dead than when he is living. Very often we disparage and neglect him while in the flesh, and esteem and eulogize him in the grave.

Our respect may be slender or small for the breathing, thinking, sympathetic form, but a certain sacredness attaches itself thereto the very moment it becomes clay. The divine spark, the godlike element, as it is styled, appears to count for naught save by its absence.

Examination has more power than great deeds to make heroes, for the shadow of the tomb is a glamour to the living. Hence we find that among all nations there seems to be thrown a halo of sacredness around the bodies of their dead. This feeling seems to have been implanted in the human breast by an all-wise Creator. Massive tombs, as well as costly sarcophagi, mark the last resting-place of the illustrious dead of all ages, and millions of dollars are spent annually in embellishing our beautiful cemeteries, where the ashes of our loved ones repose.

How shall we dispose of our dead? is a question which has agitated the mind of man from the creation down to the present time. Sanitary science has during the past few years thrown a flood of light upon this important subject, which we are warranted in saying was almost entirely unknown among the ancients, or even as far down as the beginning or close of the last half-century, and while they excelled us in many of the arts and sciences, such as the art of embalming, sculpture, and painting, they were far behind us in that most important of all sciences, *sanitary science*. It is a statistical fact that many of those terrible epidemics, such as the plague, Asiatic cholera, yellow fever, and many others

¹ Read before the Ohio State Medical Society, 1894.

which have from time to time almost depopulated some portions of the globe, can be traced to errors in the common laws of sanitation, and which, with proper care, might have been averted, thus saving millions of precious human lives. Great benefit has arisen from a careful attention to the laws of sanitation, which have been assiduously studied of late years by many zealous investigators of this branch of medical science.

Cremation, as a means of preventing the spread of disease, is again coming to the front, and the subject is being discussed at length, not only by leading scientists in our own country, but also throughout continental Europe. Cremation, or the burning of human corpses, appears to have been a general practice in early times among various nations, with but a few exceptions. The three exceptions to the rule we find to have been, first, among the Egyptians, where the bodies were embalmed; in India, where they were laid away in sepulchres; and in China, where they were buried in the ground.

The practice of cremation was of great antiquity, and of no slender extent. We read of the Grecian generals, of Homer, of the funeral obsequies of Patroclus and Achilles, also of the funeral-pyre of Hector, burnt before the gates of Troy. This same practice extended to the West, and was in use with most of the Celts, Sarmatians, Germans, Gauls, Danes, Swedes, Norwegians, and, lastly, among the Carthaginians.

Cornelius Sylla was not the first whose body was burned at Rome, but he was the first of the Cornelian family. From this time the custom spread rapidly, and soon became the prevailing practice. The Egyptians were afraid of fire, not as a deity, but as a devouring element, mercilessly consuming their bodies and leaving too little of them; and, therefore, by precious embalmments, depositure in dry earth, or handsome enclosure in glasses, they contrived the most notable ways of integral consecration. At Rome, burning was the rule down to the close of the fourth century. Whether in any of these cases cremation was adopted on sanitary grounds is somewhat doubtful, and we are inclined to the belief that it was adopted more on religious grounds, having been handed down by tradition from the fathers.

Cremation is still in vogue in a great portion of Asia and South America, but in different forms. Among some, the ashes are stored in urns, among others buried in the earth or thrown to the winds. The urns used by the ancients, wherein were depos-

ited the ashes of their dead, were very elaborate, and were guarded with great care lest some ruthless hand might destroy or deface them. Some of these urns are found to-day in a perfect state of preservation in the famous Appian Way near Rome.

The custom of urn-burials, although a relic of antiquity, after all, had a beautiful sentiment connected with it, and always had a charm for us. It precludes forever the baneful thought of our bodies mouldering in the grave, and then being devoured by worms. We are often, too, confronted with the horrible thought that after our remains are laid to rest in the grave, our bodies may be disturbed and our graves desecrated by strange hands. And as Sir Thomas Browne has so aptly expressed it in his "Urn Burial," "To be gnawed out of our graves, to have our skulls made into drinking-cups, and our bones turned into pipes, to delight and sport our enemies, are tragical abominations all escaped in burning burials."

It is related of one of America's greatest surgeons, who died only a short time ago, that he became a thorough convert to cremation long before he died, and requested that his body should be burned. Having been asked his reason, his reply was, "That he did not wish to have his grave desecrated by some antiquarian looking after specimens in the earth, and to come across his body and bones and ask what antediluvian race he belonged to." Such a thought was abhorrent to a man of his fine feelings and sensibilities; and yet how often such things do occur, and we know it, even in this boasted nineteenth century. Need we call to mind in this connection the indignities which were heaped upon the body of the immortal Cromwell, after the restoration of Charles II. of England? how his body was ruthlessly torn from its last resting-place by the infuriated mob, and thrown into the Tyburn, amid the sneers and jeers of the rabble? History repeats itself, and is full of just such horrible barbarities.

We are aware that the idea of cremation is abhorrent to many minds, and justly so, we take it. Still, after all, it is a matter of education to a very large extent. We must remember that the mode of cremation now in vogue is very different from that practised by the ancients. The old funeral-pyre is entirely done away with. The fire does not touch the body at all. It is placed in a clean retort, and is so admirably arranged that the whole body is consumed in a very short space of time without a particle of the fire coming in contact with the body. The ashes

are then deposited by the friends of the deceased in a beautiful urn for safe keeping. This, to me at least, does away with the horrors which surround the old custom of cremation. Says one of our able authors, "Christians have handsomely glossed the deformity of death by careful consideration of the body and civil rights which take off brutal termination, and though they conceded all reparable by a resurrection, cast not off care of interment."

It is from a sanitary point of view mainly that we desire to discuss this all-important subject. If it be true that diseases are propagated by bodies buried in the ground, is it not the duty of the sanitarian, and philanthropist as well, to devise, if possible, some means by which the living may be protected from the dead?

Science speaks out loudly on this subject, and what is her solution of the problem? It is only within the last quarter of a century that the relation of microbes to infectious diseases has led to efforts for the substitution of burning for burial. It is only within the past few years that no less a personage than Sir Henry Thompson, the great English physician, in some very learned papers contributed by him to the *Contemporary Magazine*, said that burial involved much danger to the living, and urged the advantages of cremation. This is but the reiteration of the germ-theory of disease, so ably advocated by the leading savants of Germany. The attention recently given to the subject by such leading thinkers has resulted in the formation of cremation societies and the erection of crematories in various parts of Europe and America. Both sentimental and legal obstructions had to be overcome, and not until 1884 was the first body cremated in England. In our own country one of the first crematories was built at Washington, Pa., under the direction of the late Dr. Lemoyne, of that city, who was a very distinguished physician and convert to the theory. Since that time they have been built in very many of our large cities.

It is asserted (and the truth of the assertion is no longer questioned) that the efforts to arrest infectious as well as contagious diseases, such as scarlet fever, diphtheria, and some others, are frustrated by the burial of infected bodies; for though the microbes themselves may die, their spores or seeds have very great vitality; that the burial of bodies of those who have died from these diseases does not destroy the contagion that still lurks within them; that in the neighborhood of cemeteries there is a

constant increased risk of contamination of both air and water. The problem is solved by the practice of cremation.

Pasteur's researches have proved that earthworms bring up to the surface microbes from the bodies of infected animals buried several feet deep. Professor Darwin shows that in one case in fifteen years worms had accumulated worm-mould to the depth of over three inches, and in another case during eighty years has accumulated an average depth of more than a foot. In the field in the Jura where a diseased cow had been buried at the depth of nearly seven feet, Pasteur showed that the mould which had collected two years later contained germs which, on being inoculated into a guinea-pig, produced death from the same disease from which the cow died. In a Yorkshire village part of a disused graveyard was taken into the rectory garden adjoining; on the earth being dug over scarlet fever broke out in the rectory nursery and thence spread over the entire village: it proved to be the same type as that from which thirty years before the natives died who were buried in that particular spot in the graveyard. On opening a small-pox burying-ground in Quebec, 150 years old, the small-pox immediately broke out among the workmen. We give the above as facts, and the reader is allowed to draw his own inference. One fact is worth a thousand theories.

During the past year that most terrible of all modern scourges, Asiatic cholera, has been devastating the continent of Europe, and some cases were reported in New York. Strict quarantine regulations were at once established, and by this means this terrible scourge was prevented from becoming epidemic in our country. We see that in some of the cities in Germany, where the disease has been prevailing with such frightful mortality, cremation has been practised as the best and surest means of disposing of the bodies of the dead and of preventing its propagation. We do not believe that the disease will ever get a firm foothold in our country, from the fact that the sanitary condition of our country is much better than that of our neighbors across the water. It is to be hoped that if the disease should assume an epidemic form the coming year, that every means will be employed to avert it. Should it be observed by those who are in charge of affairs, that the spread of the disease cannot be averted by ordinary means, and should cremation be deemed necessary, we think no obstacle should be thrown in the way of our government of its being carried out to the very letter. We are

happy to know that steps have been taken by our government in placing restrictions upon immigration, they not allowing vessels from infected ports to enter our harbor during an epidemic without examination.

Professors Koch and Pasteur both claim that they have practically demonstrated the fact that the cause of Asiatic cholera and other infectious diseases is owing to a very minute bacillus, which is of a living nature, and can only be discovered by the aid of the most powerful microscope; also that these bacilli are very numerous, infecting the stomach and alimentary canal; and that they are carried into the human system through impure drinking water, breathing impure air when the disease is prevailing, and from clothing, and even can be carried by means of the hands, when not properly cleansed and disinfected; that they have wonderful tenacity of life, and are reproduced very rapidly; they meet extremes of both heat and cold,—boiling could not destroy their vitality entirely, nor could extreme cold render them innocuous. The treatment of *inoculation* is the one now advanced by Professors Koch and Pasteur, and they claim by this means the bacilli can be destroyed in the system, and the violence of the disease very much modified, if not removed entirely.

Whether this theory is the true one or not still remains to be proved. We do not think a sufficient time has elapsed since the new doctrine was promulgated, to predicate a positive opinion. Time, however, will demonstrate the truth or falsity of the theory. We are somewhat of a "doubting Thomas," yet we hope for the best; and if the theory should prove to be the correct one, it will be one of the greatest discoveries of the century, and the names of Koch and Pasteur will go down to posterity along with those of the immortal Harvey and Jenner, and others whose lives have marked an epoch in medical science.

Professor Bouchard, member of the Paris Academy of Medicine and Professor of Pathology and Therapeutics, in his late scholarly work "On Auto-Intoxication in Disease, or Self-Poisoning of the Individual," is not a disciple of the Koch theory, but an expositor of the doctrine of toxic secondary products, either by the microbes or by the combination of substances within the body, as the direct causes of infectious diseases,—a doctrine now held by very many learned men in the profession.

The theory, too, as to the hereditary character of pulmonary consumption is now being successfully combated by many in the

profession. They claim that it is highly contagious in its character, and advocate the isolation of the patients in the advanced stages; and that the disease can be acquired by a healthy person when constantly exposed to it. The theory of isolation is the great modern weapon in combating all forms of contagious disease. Dr. Cyrus Edson, of New York, a well-known specialist of that city, is an advocate of this theory.

The age in which we live is very largely a theoretical as well as speculative one, and it is best not to be too hasty in drawing our conclusions. If, therefore, as has been demonstrated, our efforts thus far have proved unavailing in our attempts to arrest the march of cholera and other infectious diseases, why not resort to the practice of cremation? In this way we destroy entirely the germs of these diseases. Fire is acknowledged to be the great purifier and refiner, and in cases where the disease cannot be arrested by the ordinary means used, why not employ it?

During the past decade very many distinguished chemists and physicians of Italy have advocated the adoption of cremation as a sanitary measure. In Great Britain also, through the instrumentality of many distinguished physicians, it is now being strenuously advocated as the safest and best means of arresting the spread of all forms of contagious as well as infectious diseases. Says Sir Henry Thompson, "Give me the dead body to resolve into carbolic acid, water, and ammonia as rapidly as possible, and I have no fear of the disease spreading or gaining a foothold in neighborhoods where it is prevailing."

In early times, when our country was sparsely settled; and when there was plenty of room for the burial of our dead, the subject of burial was of but little moment. But now our cities and towns are rapidly filling up with a large foreign element from every quarter of the globe, the death-rate is rapidly increasing, and our cemeteries are crowded. Thus we can very clearly see that the time is not very far distant when some action must be taken in our municipal authorities throughout our land as to what means should be employed to dispose of our dead in order to preserve the living from infection.

We desire to say a few words also with reference to the custom of burying our dead as now practised. The holding of public funerals when persons have died with infectious diseases is reprehensible in the highest degree, and should not be tolerated for a single moment. It is not only the duty of local boards of health,

but city authorities as well, to see to it that all such burials should be private. We are satisfied that diseases are very rapidly communicated in this way, and that public funerals are the fruitful source of propagating various forms of diseases. Disinfectants are of little avail in these cases, and are a cloak merely for masking disease; and while they are beneficial in very many respects, they do not, nor cannot, neutralize the deadly poison. In some of our cities the people have become thoroughly aroused to the importance of this step, and are acting accordingly. The remains of the deceased should not be opened for inspection for a single moment, and they should be interred at the earliest possible moment. The great question which is confronting the physician of to-day is not so much how he should cure disease, as it is how can he prevent it.

There are some other interesting points which we would like to discuss more fully, but will be obliged to omit for want of space. We have endeavored to present this subject of cremation in a very practical and common-sense manner, and if we have succeeded in saying anything that will be of interest to the profession at large, we will be more than compensated for our time and trouble in preparing this paper. It is no longer an open question with us, whether after all, amid the blazing light of the present century, it would not be more in keeping with the facts as advanced by leading scientists of the day throughout the world, that the practice of cremation should be employed in all forms of contagious as well as infectious diseases, as being the only safe and practical way of furnishing complete immunity to the living.

Sound Sense.

If any next-door neighbor chooses to have his drains in such a state as to create a poisonous atmosphere, which I breathe at the risk of typhus and diphtheria, he restricts my just freedom to live, and just as much as if he went about with a pistol threatening my life; if he is allowed to let his children go unvaccinated, he might as well be allowed to leave strychnine lozenges about the way of mine; and if he brings them untaught and untrained to earn their living, he is doing the best to restrict my freedom, by increasing the burden of taxation for the support of fools and worthlessness, which I have to pay.—*Huxey*.

Hygiene in University Education.¹

BY JOHN S. BILLINGS, M.D., D C.L. (OXON.),

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THE division and specialization of labor, which are characteristic of modern civilization, are applied in educational affairs, as well as in the supply of clothing, food, and habitations for the people. Your beds and houses, bread, and shoes are such as they are, and not such as men had when the first students gathered at Oxford,—and it is within your power to obtain, as necessities of your daily life, conditions which the Tudor kings could not command as luxuries,—because a few men have discovered methods of controlling and using the forces of wind, heat, gravitation, and electricity; because a larger number of men have applied their capital and brains to bringing these methods into use in collecting material, and in manufacturing and distributing the products; and because a multitude of other men have given bodily labor, for daily wages, to carry out the plans of their employers, each laborer doing but a very limited kind of work. In like manner the fact that you are about to receive practical, useful information as to the laws of life and death, the causes of certain unnecessary disease and suffering, and the means whereby these may be averted or prevented, depends on the fact that about half a dozen men have spent years in making observations and experiments, and in devising methods for the determination of the nature of these causes; that a hundred other men have made it their life work to apply these methods of investigation to the details of particular diseases; and that a much larger number of men have studied the results thus obtained, and are engaged in their practical application, and in teaching others how to use them. All of these agencies are necessary to obtain the end desired, but they are not all equally important, because some of them are more easily obtained than others, yet we need them all. We must have means to provide for increase of knowledge in hygiene, as well as to provide for the diffusion of such knowledge by means of university extension

¹ Address given to the University Extension Classes, Oxford, England, August 7, 1894; from the Boston Medical and Surgical Journal.

lectures and other agencies, because, as I shall try to show you, there are many things of great importance in practical hygiene which are as yet unknown.

When I had accepted the honor conferred upon me by the request to give this lecture, it became a serious question as to what I should talk about. I could only guess as to the character and needs of an audience of university extension students, and as to what your lecturer on hygiene would include in his course; but on thinking over the matter, it occurred to me that some of the relations of hygiene to university education might serve as a nominal thread upon which to string a few suggestions which may be of interest to you just at the present time. University education in hygiene is another matter, including but a part of the field covered by my broader title, and if we were to limit it to the present condition of things,—that is, to answering the question, “What does a university education in hygiene include?”—the answer would be a brief one. The older universities are conservative institutions, slow to change the scope and character of their work; and it is desirable that it should be so, for upon this depends a considerable part of the influence which they exercise. Scientific hygiene is a comparatively new branch of study, which, thus far, has been chiefly taken up as a part of the course in medical and technological schools; but there are now several universities which have professors and laboratories of hygiene, whose work is not confined to the pupils in their medical departments only, and it is safe to predict that this plan will soon be adopted by all the real universities.

What should a university education in hygiene include? Wherein should it differ from the course in hygiene in a technological or medical school intended to train sanitary engineers or medical officers of health? What should be its special objects? I will not try to formulate what I suppose your answers to these questions would be now, nor yet what the answers should be if you found the questions on an examination paper, but will try to suggest one or two points which, perhaps, may not have occurred to you.

The phrase “university education” implies breadth as well as depth of culture; and a man who has received such an education in any field of science should have some definite ideas as to what questions are still *sub judice* in that field,—as to what additional data are still wanted, as to what original investigators and

observers are working at ; in short, he should know the boundaries of our present scientific knowledge on that subject, as well as the part which has been thoroughly explored.

He cannot get this information from manuals or hand-books, nor can a short course of lectures include much of it ; it is to be obtained for the most part only by actual work in investigating, which is the best of all methods to demonstrate to a man what and how much there is that he does not know. A university education in hygiene should not only include information as to the nature and relative importance of the principal known causes of disease and death, immediate and remote, but also as to the cost of the means of partially or entirely doing away with these causes, as compared with the value of the results which may be thus obtained. It is not always worth while to be careful to avoid a danger ; one may pay too much for a life insurance ; there are times when one should go to battle, or meet a pestilence, or live in an unhealthy locality, when it is merely one's own life that is at stake ; and there are also occasions when one should take the responsibility of leaving, or putting, in danger the lives of a few to preserve the welfare of the many. The importance and value of long life is always taken for granted in discourses upon hygiene ; but if it were in your power to prolong the life of every one in England to 100 years, would you do it ? If you were offered as a gift that you should not die until you were a hundred years old, would you accept it without conditions ? Why do we expend time and money to secure at public expense the preservation of the health and prolongation of the lives of congenital idiots, of the hopelessly insane, of hereditary and confirmed criminals ?

If there is truth in the doctrine of the survival of the fittest, why do we interfere in the struggle for existence, and try to shift the inevitable penalties for the violation of Nature's laws upon those who have not violated them ? Was Carlyle right when he said, " Let wastefulness, idleness, and improvidence take the fate which God has appointed them, that their opposites may have a chance for *their* fate. He that will not work according to his faculty, let him perish according to his necessity ? " When you come to consider these and similar questions, you will see that the problems of hygiene are not merely mechanical, chemical, bacteriological, and medical ; they embrace, also, sociological, political, and ethical considerations, and the world needs some " all-round

men" to study them. Such men the great universities should endeavor to equip for this work.

The part which epidemic diseases have played in shaping the destinies of cities and of nations has rarely been investigated by historians. Even the two greatest epidemics of which we have any record, the Justinian plague and the black death, have received little more than a brief mention in the leading English histories; and yet each of these not only changed the map of Europe, but also exercised a profound influence upon the social customs and the religion of the people, an influence which has affected the New World as well as the Old. In this connection some interesting data are given in a recent work, "The Great Pestilence (A.D. 1348-49)," by Francis Aiden Gasquet, 8vo, London, 1893, wherein the effects of the black death upon the Church in England are specially dwelt upon, and its results in the formation of trade guilds are briefly indicated.

The influence of epidemics on the progress of nations and communities is by no means merely a matter of ancient history.

Yellow fever has, to a considerable extent, shaped the present commercial, social, and political condition of the West Indies and Central America, of New Orleans and Rio de Janeiro. Cholera was the immediate cause of modern hygiene: its ravages have been closely connected with certain religious observances, and its prevention is still a problem which must be solved by British statesmen; while the future of the continent of Africa depends quite as much upon progress in hygiene as upon political considerations. The International Conference at Paris, only four months ago, shows that questions of hygiene play an important part in matters of international comity, and the International Congress of Hygiene and Demography which last met in London, and is to meet again next September in Buda Pesth, is exercising an increasing influence upon public health legislation in all countries, an influence none the less powerful because it is persuasive and not compulsory.

Your teachers in hygiene can tell you what is known with regard to the causes of disease and methods of prevention, and that is much; for if we could induce every one to act in accordance with the teachings of the hygiene of to-day, there would be a great diminution of disease, and a lengthening of life among men. But I am more concerned in this lecture to call your atten-

tion to the many things that are yet unknown, and yet which probably might be known with a little work, in matters affecting practical hygiene.

Let us take a few concrete examples. What is the cause of measles? How is it communicated? What is the probability that the disease can be communicated by a person after the eruption has fully developed and the diagnosis is certain? We do not know. We know that the disease is most contagious during the three or four days preceding and during the first day of the eruption, and that attempts to prevent the spread of the disease in a family by isolating the patient as soon as the eruption appears rarely succeed, while the contrary is the case in scarlet fever and in small-pox. We suppose that the medium of contagion is the secretion from the upper air-passages, which is scattered in spray by the coughing and sneezing of the patient.

Does the susceptibility to measles diminish with advancing years, as does that of scarlet fever? We do not know; but the experience of the Faroe Islanders, and of the American recruits brought together at the beginning of our last war, indicates that while it is most fatal in children under five years of age, it may be quite as contagious and nearly as fatal among adults as among children. Now all these are questions to be considered in deciding as to whether notification and isolation of cases of measles are to be enforced in any particular locality. We have fairly good statistical evidence that the evil effects of scarlet fever, diphtheria, and small-pox have been diminished by compulsory notification and isolation; but I know of no such evidence with regard to measles.

Measles appears to have caused at least twice as great a mortality in the large cities of England and Continental Europe during the last five years as it has in the United States; but why this is so I cannot tell. The death-rate from measles is small as compared with that from accidents, or from many other forms of disease; but its evil effects are not to be measured by its death-rate alone.

Dr. Hugh R. Jones,¹ in an interesting paper on the perils of infant life, presented to the Royal Statistical Society in December last, says, "The danger of measles has been very greatly underrated. There is no doubt but that the tuberculous diseases of

¹ Journal of the Royal Statistical Society, Vol. LVII, 1894, p. 15.

childhood, whether local, as lupus and enlarged glands, or whether general and fatal, as pulmonary phthisis, are often rightly traced and attributed to an attack of measles." There is no definite evidence upon this point, which is an important one. In the United States a considerable proportion of cases of feeble-mindedness, deaf-mutism, and blindness are attributed to measles, sometimes erroneously no doubt; but we must certainly consider this disease as of sufficient importance to warrant special precautions to prevent its evil consequences. I doubt, however, whether it is worth while to expend much public money, or to interfere with home life, in order to prevent it among children over five years of age; and the true solution of the problem will probably be the production of a mild form of the disease in children, and thus making them immune for the rest of their lives. This is practically what has been done for centuries in China with regard to this disease; and, when I was a boy, I have known people to deliberately expose their children to the infection of a mild case of measles in warm weather, in order "to get the disease through the family without risk," as they said.

Something of the same sort used to be done by northern men settling in New Orleans, in purposely exposing themselves to yellow fever when it existed in a mild type, in order that they might become "acclimated," as the phrase went.

Let us next take typhoid fever. Typical cases of this disease are caused by a specific bacillus which gains entrance to the body through food or drink contaminated with the excreta of persons affected with the disease. Epidemics are due to contaminated water or milk. The stools of a typhoid case can be cheaply and easily disinfected so as to destroy the specific bacillus, and I presume that many persons think that we know all that need be known to stamp out typhoid fever, or, as the English registrars call it, enteric fever. In the United States, however, we have many cases of mild continued fever, lasting from twenty to thirty days, which we presume to be typhoid fever, but which are certainly not typical, and which shade into continued malarial forms of fever in a very puzzling way. There are also several known varieties of the typhoid bacillus; and it is not quite certain that one or more of these varieties do not exist at times in the intestinal tract without producing a specific fever in the person bearing them.

Can the specific, active typhoid bacillus be developed from

some of these, under certain circumstances, in privy vaults, cess-pools, or sewage? Is the typhoid bacillus carried in currents of sewer air? Are not all the cases in which it has been supposed to have been thus carried to infect men more easily explained in other ways, as, for example, by the supposition that it has been conveyed to articles of food or drink through the agency of flies and other insects? What degree and duration of immunity from subsequent attacks does an attack of typhoid fever confer on a man? Is there any difference between the immunity conferred by a mild and that conferred by a severe attack? Are there attenuated varieties of the typhoid organism? Can these be developed into more dangerous forms under certain conditions? Can they be used to produce immunity?

All of these are as yet unsolved, yet probably solvable problems: and there are similar ones connected with each of the known and unknown pathogenic micro-organisms upon which bacteriologists in various parts of the world are working. Tuberculosis causes, in England and the United States, much more suffering and loss of life than any other single form of disease; more than cholera, yellow fever, small-pox, scarlet fever, typhoid fever, measles, and diphtheria put together. Its immediate or efficient cause, the bacillus, has been carefully studied; and some of the modes of its transmission, through dried sputa, milk, etc., are fairly understood. To what extent heredity is a factor in its transmission, we do not know. Quite recently, in many places in the United States, it has been proposed to limit its ravages by means of compulsory notification, isolation of the sick, disinfection of their surroundings, and official supervision of milk and meat-supplies; and, in a few places, some of these methods are being tried. The results of these experiments will be watched with great interest; they are good examples of the steadily-increasing tendency to interfere with the liberty of the individual for the supposed benefit of the community.

The death-rate from consumption has been diminishing for the last twenty years in the eastern portion of the United States, and in most countries from which we have reliable statistics. Part of this decrease in the death-rate is probably due to improvements in food-supply and in general sanitation, involving greater cleanliness and more exposure to sunlight, which last is one of the most powerful agencies in destroying the infection of tuberculous sputa scattered in the streets; a part of it, during the last

ten years, is due to the education of the people as to the necessity of promptly disinfecting the sputa of tuberculous patients; and a part is probably due to a gradual increase in the proportion of persons who are immune against small doses of the tubercle bacillus, which increase is brought about by the law of natural selection. I shall refer presently to this immunity as connected with race in relation to consumption, and also to pneumonia, another very fatal disease due to micro-organisms.

Now let us take an entirely different field of hygiene,—namely, the effects produced on the health and life of men by inhaling air which has recently been expired by themselves or other men, and which also contains the exhalations from their skins.

It is generally accepted as a truism that air thus vitiated is dangerous to health, and that ventilation of living-rooms, bedrooms, barracks, school-rooms, etc., is an important sanitary measure. Forty or fifty years ago the danger was supposed to be due to carbonic acid, and the popular ideas on the subject are contained in the school-boy's composition on "Breath." He said,—

"Breath is made of air. We breathe always with our lungs, and sometimes with our livers, except at night, when our breath keeps life going through our noses while we are asleep.

"If it wasn't for our breath, we should die whenever we slept. Boys that stay in a room all day should not breathe; they should wait till they get out-doors. For a lot of boys staying in a room make carbonic acid; and carbonic acid is more poisonous than mad dogs, though not just the same way."

For the last thirty years the danger has generally been attributed to exhaled organic matter of unknown composition, but with poisonous properties, while within the last two years several experimenters have announced that the organic matter is not dangerous, and several researches are now going on to settle this important question.

Now, what are the effects upon men of exposing them for eight or ten hours a day to air rendered impure by their own exhalations, and to what particular change in the air are these effects due?

From the days of the English Barrack Commission down to about ten years ago the answer was that such air produced consumption and other pulmonary diseases. Now that we know that consumption and croupous pneumonia are produced by spe-

cific bacteria, the question is whether, if these bacteria are destroyed and kept out of inhabited rooms, which can be done to a very great extent, the foul air of an ordinary room will produce disease, and if so, what sort of disease. We do not know, and, therefore, we cannot produce scientific demonstrative evidence to convince architects and engineers that each man ought to have a certain stated supply of fresh air per minute or per hour, and that it is worth the cost of special apparatus to ensure this. Much the same may be said about the supposed injurious effects of sewer air, since we have no accurate knowledge or satisfactory evidence with regard to these effects.

There are two or three times as much sickness, and two or three times as many deaths, in crowded tenement-houses as in single dwellings of the better class, and these tenement-houses are unventilated or badly ventilated; but how much has the bad ventilation, and how much the general want of cleanliness, insufficient and improper food, alcoholism, and vice of various kinds found among the tenement-house population, to do with this matter? And what are we to say about the low death-rate in tenement-houses occupied by Jews, except that race seems to exercise a powerful influence in producing this result?

In the course of lectures on hygiene which you are to have, you will no doubt hear much about the pathogenic bacteria, as causes of tuberculosis, typhoid fever, diphtheria, pneumonia, wound infections, cholera, etc., since an understanding of their nature, habits, and modes and conditions of growth is essential to the proper dealing with contagious and infectious diseases of all kinds, even those for which no specific micro-organisms have yet been discovered. But there are other things besides micro-organisms to be considered in matters of personal, national, or international health, because even for those diseases of which they are the immediate cause, there are remote causes of great importance, such as heredity, poverty, ignorance, climatic conditions, overcrowding, alcoholism, occupation, and other things which destroy many without the aid of specific bacteria, and do much to make possible the destructive work of such organisms.

My friend, Sir Henry Acland, suggested to me that I should take "Comparative National Health" as the subject for this lecture, and any suggestion from him is to me almost equivalent to a command; but it is beyond my power to indicate even the boundaries of so broad a field as this within the limits of a single

lecture, and I can, therefore, only touch upon one point connected with it,—namely, the relation of race to health.

During the twenty years ending in 1890, the annual death-rate in Austria was 30.6; in Italy, 28.6; in Prussia, 25.6; in France, 22.8; in Belgium, 21.4; in England and Wales, 20.3; in Ireland, 18; in the United States, 18; and in Sweden, 17.6, per 1000 of living population.

Such figures, however, prove very little, for in comparing the vital statistics of different countries and nations, either as to general death-rates or death-rates due to particular diseases, it is impossible to say what proportion of the difference observed is due to differences in climate and food, and what to race peculiarities. This difficulty can be in part avoided by examining the vital statistics of different races living under the same conditions as to climate, etc.; and the data coming from certain portions of the United States, which is now the great mixing-ground of races, are especially valuable in this respect.

In 1890 the city of New York contained about 335,000 white persons whose mothers were born in America, and 25 000 colored; 400,000 whose mothers were born in Germany; 400,000 whose mothers were born in Ireland; 120,000 Russian and Polish Jews; 55,000 Englishmen; and 54,000 Italians. You will see that it had a larger Irish population than any city in Ireland, and that but three cities in Germany exceed it in the number of German population.

Taking the deaths among persons 15 years old and upward for the six years ending May 31, 1890, we find that the annual death-rates per 1000 of population in these different races are as follows: Irish, 28; colored, 23.6; English, 20.8; Germans, 17.0; Americans, 16.0; Italians, 12.3; Russian and Polish Jews, 6.2.

The low death-rate of the Jews has been noted in Germany and France also. In New York City they occupy some of the most crowded tenement-house districts. A considerable number of those reported as Germans were Jews with a low death-rate; and if these could be separated, the death-rate of the Germans would probably be over 19 per 1000.

These are general death-rates only. Let us see what the figures are for certain causes of death. The annual death-rates for consumption were, for each 100,000 persons: colored, 774; Irish, 646; Germans, 329; Americans, 205; Russian and Polish Jews, 98. For pneumonia, the death-rates per 100,000 persons of

all ages were : Italians, 456 ; colored, 390 ; Irish, 344 ; American whites, 273 ; English, 269 ; Germans, 214 ; Russian and Polish Jews, 170.

I will not weary you with further details of figures, which those of you who are specially interested in the subject will find in the Reports of the Vital Statistics of the Eleventh United States Census, but will merely say that the corresponding data from Boston, Philadelphia, Baltimore, Washington, and from the New England States as a whole, taken with those from New York State and New York City, and with those derived from a special investigation of over 10,000 Jewish families, including over 50,000 persons, lead to the following conclusions as being probable for the United States.

(1) The colored race is shorter lived than the white ; and has a very high infantile death-rate ; it is specially liable to tuberculosis and pneumonia, but is less liable than the white race to malaria, yellow fever, and cancer. (2) The Irish race has a rather low death-rate among its young children, but a very high one among adults, due to a considerable extent to the effects of tuberculosis, pneumonia, and alcoholism. (3) The Germans appear to be particularly liable to disorders of the digestive organs and to cancer. (4) The Jews have a low death-rate and a more than average longevity ; they are less affected than other races by consumption, pneumonia, and alcoholism, but are especially liable to diabetes, locomotor ataxia, and certain other diseases of the nervous system.

The effects of heredity upon liability to diseases and death appear to be due in part to difference in structure and composition of the tissues and fluids of the body, but to a much greater extent to differences in place and mode of life connected with relative poverty and ignorance.

The bacillus of tubercle and the micrococcus of pneumonia are affected as to their growth and development by hereditary peculiarities of structure of men,—in other words, just as many individuals are more or less immune against these organisms under ordinary circumstances, so, also, are certain families and races ; and the same is true as regards a large number of the contagious diseases, as well as some which are not contagious so far as we now know, such as cancer, diabetes, hystero-epilepsy, and sclerosis of the brain and spinal cord.

Can this relative immunity be developed or increased in an

individual or a family by artificial means, or by regulations of the habits and modes of life? And, if this can be done, what effect will the production of immunity against one micro-organism or disease have upon the effects of another micro-organism or cause of disease?

If we can produce a branch of the Irish race which will be as immune against the bacillus of tuberculosis as are the Jews, will that race be specially liable to diabetes or cancer?

As all men must die, the effect of stamping out one particular form of disease must be to increase the number of deaths from other causes, and in this sense it is true that vaccination has increased the number of deaths from accidents, from suicide, and from consumption, because it has preserved children from small-pox to die at a later period from these other causes; but we have not a particle of evidence that the immunity against small-pox produced by vaccination is the cause of, or is accompanied by, a less immunity against some other disease.

It should be remembered that for all diseases of which one attack produces immunity, the tendency is, in the course of many generations, to make the whole population subjected to such an influence immune.

Perhaps some of you may think that such questions as I have suggested are purely theoretical, unanswerable, and therefore of no practical interest; but it is not so. Some of them, if not all, can be answered, and they ought to be answered. To do this, new lines of investigation must be opened,—partly experimental, in well-appointed laboratories; partly by collective investigations by medical men and in hospitals; partly by new methods of statistical research based on disease, as well as on death-registration and the census.

And the universities should train some men to understand the importance of this work,—the men who are to become legislators and heads of departments, and some other men who can do the work if means and opportunities are afforded them.

Observe that I say “should train some men,” not “should train all their students.” Of every hundred students at a university, not more than half-a-dozen can be developed into original investigators and thinkers, and probably not more than one in a thousand can ever be induced to devote himself seriously to such problems as I have indicated, because, as a rule, the only reward that can be expected is the satisfaction derived from the work

itself. Such work requires much time, great skill and patience, and the opportunities which only a well-equipped laboratory or an official position can furnish.

The universities cannot produce the men qualified to do such work,—“God alone can make an artist or a man of science;” but they can take care of such men when they appear, and can give them opportunity and encouragement.

If we accept the ordinary definition of hygiene as being the art of preserving and improving health, it is not so much this technological matter that a university education should include as the scientific foundations upon which the art rests. It does not appear desirable that every university man should know the proper gradient of a sewer, the best form of traps and house-drainage fixtures, the peculiarities of patent ventilators, or the proper construction of a hospital for contagious diseases, any more than he should know how to treat a case of pneumonia, or how to draw up a conveyance of a piece of real estate; but he should know where to go for accurate and reliable information and advice on these subjects.

It is now generally admitted that biology is a branch of science for which universities should provide the means of increase and of diffusion of knowledge; but it has not yet been generally understood that morphology and physiology, as ordinarily provided for in university work, do not cover the most important part of biology, that part to which they are merely necessary preliminaries, that part which is the main reason for their existence, and without which they rest on narrow, scientific foundations,—namely, pathology. We cannot be said to understand the structure and functions of an organ until we know what these are in its abnormal as well as in its normal condition. It is to experimental pathology in its broadest sense, including not only the study of lesions specially produced for the purpose, but also the study of the lesions produced in man and animals by disease, each case being one of nature's experiments, that we must look for the most valuable explanations of peculiarities of structure and function, for explanations of the mode of action of physical, chemical, and vital agencies in the production of disease, for means to counteract the abnormal conditions and actions of organs and tissues; in short, for the scientific foundations of hygiene.

It appears to me that at the present time the majority of the

English and American universities are in urgent need of a department of pathology, properly equipped for original research and for teaching, not as a mere technological matter, or as merely a branch of the medical department, but as a department of general biology; and the organization of such a department should precede or accompany the organization of a department for the promotion of scientific hygiene.

A paper on "Hygiene in University Education" should certainly include something about the preservation of the health of teachers and pupils, the means by which they are to be kept most fit for their work, with due consideration of the influence of athletics, of cramming (whether mental or physical), of competition under pressure of examinations, etc., upon the complicated and curious mechanism of the human body; but I must leave this to others, and I do so with the less reluctance because I think that advice on these points is of little use in comparison with personal experience.

While I lay stress on the promotion of original research in problems of hygiene as one of the most important functions of a great university of the present day, it is by no means its only one. It is also to train teachers, men who can explain to others what is really known on these subjects, and the consequences thereof, in a fashion which will command attention, interest, and belief. It is knowledge of the truth about these things which frees a man from much unnecessary pain, causeless fears, and useless labor, and from being swindled in a thousand ways; and I presume that this university extension course in hygiene is intended to furnish knowledge, and also to create a thirst for more.

To one who has had little practical experience in sanitary matters, the importance of educating the people on this subject is not sufficiently apparent, although he may admit it as a matter of theory. He is too apt to suppose that the people at large can be made healthy by regulations enforced by officials employed for the purpose. He wants laws to suppress tuberculosis, puerperal fever, cerebro-spinal meningitis, etc., by means of enforced notification, isolation, and disinfection. He would have a certain hourly supply of fresh air furnished by law to every sleeping-room; would compel every one to take a bath every day, or at least once a week; would have all food officially inspected, and prohibit the use of alcoholic drinks and tobacco to men under 50

years of age ; would not allow the sale of corsets or of shoes which do not conform to the natural shape of the foot ; would regulate the hours of study and of exercise for school-children, and have inspectors examine their toys and picture-books for dangerous colors ; in short, it is difficult to foretell what he would not do by legal process, if he could, to prevent what he thinks is injurious to life and health, and, as a general rule, he will find plenty of people who will passively assent to such propositions.

Perhaps, on the same ground, may be advocated the refusal of permission to marry unless both parties to the contract have been approved by skilled inspectors, or the official assignment of persons to particular occupations best suited to their health. It is possible that (by these and other regulations which will no doubt occur to you) a healthy community might be produced in time, provided that great care was taken to prevent any one from getting away.

And no doubt the civilized part of the world is at present tending to increasing interference with the liberty of the individual for the real or supposed benefit of the community ; but attempts to hasten this progress in advance of the education of the community, or without due consideration of the manifold social, commercial, and professional, as well as the sanitary interests involved are not likely to produce good results ; on the contrary, it is probable that their remote effects may be the injury of the very cause which their enthusiastic advocates are trying to promote. You cannot legislate a new layer of cortical gray matter into, or a cirrhotic liver out of, a man.

It has been said that the car of progress has square wheels ; at all events, it bumps horribly sometimes, and the results of going too fast may be very unpleasant, even if they are necessary.

Thirty years ago Dr. Parkes remarked that "in the scheme of Providence it may not be meant that men shall be healthy," and asked whether the belief that in the future there may be an art of hygiene which will keep the body, mind, and soul in perfect order is merely "one of those dreams which breathe a blind hope into us, a hope born of our longings and destined to die of our experience."

"After all the stormy changes, shall we find a changeless May?

All diseases quenched by Science ; no man halt, or deaf, or blind ;

Stronger ever born of weaker ; lustier body ; larger mind ?"

The scientific foundations of practical hygiene have been immensely broadened and strengthened within these thirty years; and within the same period, in most civilized countries, the death-rates have been lowered, the average duration of life increased, and life, while yet it endures, has been freed from some of its pains and terrors. But the community of perfectly healthy men and women does not yet exist, nor is it possible that such a community, if found, could continue to exist indefinitely if the present rate of increase of population of the earth shall continue.

Sewage is inseparable from humanity; and each one of us carries about within himself millions of bacteria, which usually help him to digest his food, but which at times wander into his tissues and produce mixed infections which tax the utmost skill of the physician and surgeon to treat.

In studying medical and vital statistics to determine the influence of sanitary work in obtaining purer water-supplies, better drainage, greater isolation and restriction of contagious diseases, etc., we are "somewhat in the position of a man on the deck of a large Atlantic steamer out of sight of land, and gazing on the troubled ocean. He sees many waves, large and small, apparently moving in very different directions; and it is not until he has by careful examination and repeated comparison learned to distinguish the ripples due to the wind now blowing, the larger cross-seas resulting from forces which were acting a few hours before, and the long, rolling swells which indicate to some extent the direction and force of the tempest of yesterday, that he can begin to understand the roll of the ship on which he stands: while to appreciate the force and direction of the great current which is sweeping with it all the troubled water and the ship itself, requires skilled observation with special instruments, and the use of charts which embody the experience of hundreds of voyages. So, also, in viewing the records of human life, disease, and death, the variations which are at first most perceptible are often those which are most superficial, and which give little or no indication of the magnitude and direction of the movement of the great masses beneath."¹

During recent years the birth-rate has been diminishing in proportion to population in most civilized countries, as will be seen by the following table:

¹ Cartwright Lectures on Medical and Vital Statistics, New York, 1889.

The Annals of Hygiene—591

BIRTH-RATES PER 1000 POPULATION.

| Country. | 1880. | 1890. |
|-----------------------------|-------|-------|
| United States | 36.0 | 30.7 |
| England and Wales | 34.2 | 30.2 |
| Scotland | 33.6 | 30.3 |
| Ireland | 24.7 | 22.3 |
| France | 24.5 | 21.8 |
| Belgium | 31.1 | 28.7 |
| German Empire | 37.6 | 35.7 |
| Austria | 38.0 | 36.7 |
| Switzerland | 29.6 | 26.6 |
| Denmark | 31.8 | 30.6 |
| Norway | 30.7 | 30.0 |
| Netherlands | 35.5 | 32.9 |

This diminution of the birth-rate began in most countries in 1876, and is a matter of considerable importance in the sanitary as well as in the sociological problems of the future, for it must be given due consideration in making plans for regulating by law the health, the labor, and the lives of men.

What are the relations between diminishing death-rates, diminishing birth-rates, and diminishing marriage-rates? How much of the lowering of the death-rate in recent years is due to public sanitation? how much to improvements in medicine and surgery? how much to increasing immunity of the great mass of the people to certain forms of disease? how much to better and cheaper food-supplies? Is it more probable that twenty years hence the death-rates will be lower, or that they will be higher than they now are?

It seems to me that a great university which is worthy of its name should provide for the training and equipment of a few men to consider these and similar questions, and for the training of many men who are to be the future legislators for, and advisers of, the people, in such fashion that they can appreciate, and make practical applications of, the conclusions to which the special students shall arrive.

Just at present the practical problems of public hygiene relate mainly to masses of men, to cities, bound together by the iron lines of the railway and the telegraph; but as the coal supply diminishes, the cities will begin to diminish also, unless our engineers will give us some new means of storing the forces of the sun's rays, of the winds, or of the tides, and when that happens, sanitary questions will become of the first importance

for all countries. "As of the leaves on a thick tree, some fall and some grow; so is the generation of flesh and blood, one cometh to an end and another is born."

Whatever happens, we must all continue to live in the shadow of the hawk's wing, as our forefathers have done, since each has but a certain span of life, which he cannot lengthen, although he may easily shorten it. He can, however, learn not to be afraid of this shadow,—learn to look up and not down, to look out and not in; and one of the best means of doing this is to devote time and thought and labor to the helping of others to help themselves, which is the essence of public hygiene, as it is of true charity and of all real human progress.

This is a part of that wisdom of which we are all seekers, and of which such knowledge as can be gained in university halls is but a means and not an end,—that wisdom which, speaking through the poet, has said,—

"I wear no garment, drop no shade
Before the eyes that all things see;
My worshippers, howe'er arrayed,
Come in their nakedness to me.
The forms of life like gilded towers
May soar, in air and sunshine drest,
The home of Passions and of Powers,
Yet mine the crypts whereon they rest.

"Embracing all, sustaining all,
Consoling with unuttered lore,
Who finds me in my voiceless hall
Shall need the oracle no more.
I am the knowledge that ensures
Peace, after thought's bewildering range,
I am the patience that endures;
I am the truth that cannot change."

The Age to Marry—Physically Considered.¹



ADAME SARAH GRAND heroically took a very large and unwieldy bull by the horns when she thrust the subject of marriage between unclean men and pure women from the shadows, to which it has been relegated from time immemorial, into the bright glare of the realm of fiction, and made it boldly the

¹ Compiled for The Cincinnati Medical Journal.

subject and text of the most read book of the hour,—namely, “The Heavenly Twins.” Hitherto this had been one of the nameless subjects rarely alluded to except in the occasional conclaves of medical men, too often unpublished, a theme that society has been bound to ignore in order to keep itself in countenance, and has thus been cheated into the belief that there was no such evil, or at least one worthy of little consideration. Madame Grand has turned on a very strong search-light, and has succeeded in creating a commotion probably great beyond anything she had anticipated. Everybody has read or is reading her book. It is the subject of innumerable reviews in every vein. The comic papers are having their fling at it, and the religious weeklies are emphasizing what she has said. The medical journals are, some of them, making careful studies of the book, more will follow.

There is another subject along the same general line, of more universal concern, possessing possibilities equal if not greater than the one chosen by Madame Grand, for a great story, with a great moral. It is a discussion *in all its bearings* of the age most fitting for men and women to marry.

Recently a young doctor, of more than usual promise, in a large Western city, observing the great extent to which ill-health prevails among American women, and believing it due in a great measure to early and ill-advised marriage, addressed a letter to many eminent specialists in the treatment of women, asking their opinion as to the proper age for women to marry. The most of those addressed answered promptly, and it is noticeable that there is more unanimity in their responses than ordinarily characterizes the result of such inquiry from medical experts.

Dr. Wm. T. Lusk first responded. He is one of the best known American physicians identified with this subject. For years he has filled the chair of professor of obstetrics and diseases of women in Bellevue Hospital Medical College, New York. His book on these subjects of medical science has long been regarded as a standard treatise and has been translated into many languages. He writes as follows :

“MY DEAR DOCTOR: Too early marriages are, in my opinion, to be deplored. As every intelligent physician knows perfectly well, very young girls are scantily developed, and, therefore, illy bear the duties and pangs of a maternity, which are necessarily attended in such cases with very heavy mortality. All the dangers and risks to which mothers are unavoidably sub-

jected are greatly increased. Girls married at an early age too often become haggard old women before they are 30. They lose their comeliness and attractiveness, and become peevish, fretful invalids. As a consequence, their husbands' attention and affection often centre elsewhere. Marriage at too early an age on the part of a wife is the cause of many unhappy homes and many applications for divorce. These are the principal factors in the indictment against early marriages.

"Yours very truly,

"W. T. Lusk."

The next letter came from Dr. A. F. A. King, who is widely known throughout this country and Europe as a distinguished teacher and writer. He holds the professorship of obstetrics and diseases of women in the medical department of the Columbian University at Washington, D. C., besides filling the same chair in the medical department of the University of Vermont. His "Manual on Obstetrics" is regarded everywhere as a standard text-book on the subject. The letter from him is characteristically direct and to the purpose.

"DEAR DOCTOR: In reply to your request for my views on the subject of the proper age for girls to marry, I would say that there is no absolute rule that can be laid down for all women. This is because so much depends upon the station and mode of life, the occupation, the health, and the hereditary tendency of each individual. I must say, however, that personally I am in favor of early marriage, but by that I mean at the age of 17 or 18 years, certainly not 16, 15, or younger. To a strong, muscular girl leading an active life out of doors, in the pure country air, and not overtaxed by over-study and exciting amusements, fashionable dissipation, etc., early marriage would not be so injurious as to one brought up in a luxurious city home, with little or no fresh air and exercise, her nervous system exhausted by severe study and 'society diversions,' and her vitality lowered by dancing in the impure atmosphere of overheated rooms. Too early marriages tend to injure the health and strength and shorten the lives of women, as well as to produce feeble, degenerate, and short-lived offspring. Girls coming from, or whose parents were born or raised in, a very hot climate,—like that of the Oriental countries, for example,—may, of course, contract marriage at an

earlier age than those born in our country of American parents.
With kind regards,

“ I am very truly yours,

“ A. F. A. KING.”

All readers will be interested in what Dr. F. H. Davenport has to say on this important subject. He is professor of gynæcology in the medical department of Harvard University, and as well qualified to write on the subject under discussion as any man can be. His work on gynæcology has received the hearty commendation of medical men and medical journals generally throughout both hemispheres. He sends the following letter :

“ MY DEAR DOCTOR : In reply to your letter of inquiry as to what is the best age for girls to marry, I would say that in my opinion they certainly should not do so before they are 18 years of age, and that in many cases 20 would be much better. From 20 to 23, or even 25, are the best years. This is so because up to 18 and 20 years a girl is still growing, and she needs first to be thoroughly developed herself before undertaking the duties and responsibilities of motherhood. She cannot marry before this development is completed without detriment to her own health and that of her offspring. If a woman waits until 20 before marrying, she will, as a rule, endure the cares of maternity better, have healthier children, and preserve her own health and youth much longer. This is the main argument in my opinion, though there are other minor considerations which would also have weight.

“ Yours very truly,

“ F. H. DAVENPORT.”

Dr. T. Gaillard Thomas is on every account an authority on this subject. At present he is professor of diseases of women in the College of Physicians and Surgeons, New York, is an officer and member of more learned societies—American and foreign—devoted to this branch of medicine than, perhaps, any other American physician. His deservedly high reputation as a brilliant and reliable writer upon all subjects connected with his specialty gives peculiar weight to his views expressed below :

“ DEAR DOCTOR : In my opinion, it is a great mistake, and a practice very much to be reprehended, for girls to marry before they have attained the age of 18 years. The statement admits

of no controversy that prior to arriving at that age they are not fully matured. On physical grounds, therefore, I should select an age between 18 and 22 years as the one at which it would be wisest and best for girls to marry.

"Yours, very truly,

"T. GAILLARD THOMAS."

Dr. William Goodell, Professor of Gynæcology in the University of Pennsylvania, located in Philadelphia, has had a very wide experience in the practice of his specialty, and has made many valuable additions to its literature. He expresses his views below in no uncertain manner :

"MY DEAR DOCTOR : I object to early marriages because the character cannot possibly have become formed, and because the body cannot have attained its full and complete development. Hence it must therefore follow as a natural and unavoidable sequence, that such marriages are usually very unhappy ones, and are almost invariably unhealthy ones, for the wife's health is pretty certain to give way very early. Girls marrying earlier than from 18 or 20 have little chance of some day being what every married woman should live to be,—'fair, fat, and forty.'

"Yours truly,

"WILLIAM GOODELL."

Dr. Matthew D. Mann is the professor of obstetrics and diseases of women and children in the medical department of the University of Buffalo, and is also the dean of that institution. He is widely known, both in this country and Europe, as a most valuable contributor to the literature of gynæcology, and sends the following answer to the question propounded to him :

"MY DEAR DOCTOR : I feel sure that all authorities will agree that marriage at the ages you mention, or at any age prior to 18 years, cannot fail to be very injurious to any girl. Prior to 18 the body is not properly developed. It is still growing, and, therefore, it needs all the nourishment it can possibly obtain for its own growth and nutrition. Of course, the earlier the marriage, the more forcibly do these observations apply, and marriage at 15 or 16 can hardly fail to be exceedingly disastrous in its results. In view of these facts it seems to me to be the duty of every physician to protest in the strongest manner pos-

sible against the practice of girls contracting marriage prior to the age of 18 years.

“Yours truly,

“MATTHEW D. MANN.”

Dr. Thomas Addis Emmet enjoys a high reputation as a gynæcological surgeon, and for some years past has held the position of surgeon to the Woman's Hospital, New York. His letter, printed below, is as trenchantly expressed as his “Principles and Practice of Gynæcology,” a book which has been widely read and commended by the profession of medicine :

“DEAR DOCTOR : In reply to your letter of inquiry, I would say that the question of the age at which girls should marry is a very serious one, and is worthy of the most careful consideration. It is one in which the whole world has a most vital interest, and one with regard to which young women and their parents generally need enlightenment. For my own part I do not consider that a woman is fully developed until she has reached 22 or 23 years of age. A woman runs a great risk if she marries under the age of 18 years, and she is almost certain to be injured by maternity. I have noticed that a large number of the cases of cancer that I have to treat have been those of women who had contracted marriage at an early age. Many other serious ailments are produced by early marriage.

“Yours truly,

“THOMAS ADDIS EMMET.”

Dr. Walter F. Atlee, of Philadelphia, is, perhaps, the best known of all American men in connection with some of the most difficult and important operations in gynæcological surgery, which he has performed many times upon patients who have come to him literally from all parts of the world. His writings upon these subjects have commanded universal attention and respect. His answer to my friend's letter is couched in the following terms :

“DEAR SIR : There can be no question in my mind that the proper time for entrance upon the marriage relation is that period of life at which the development of the organism has been thoroughly completed, and when the constitution is definitely established. In my opinion, this would be when a man is 25 and a woman 20 years of age. For the woman who is of robust

health, perhaps even 18 years may not be too young, but a man should not marry before he is at least 25 years of age. Please bear in mind that I answer as a physician, and not as a moralist or a political economist.

“Respectfully,

“WALTER F. ATLEE.”

Dr. Theophilus Parvin is generally recognized in his profession as one of the highest of all authorities upon the subject under consideration. He is the professor of obstetrics and diseases of women and children in Jefferson Medical College, Philadelphia. His writings in connection with the above-named branches of medical science have been widely published, and their reputation as standard works is fully established. He writes as follows:

“DEAR DOCTOR: My opposition to girls contracting marriage at an early age is most plainly expressed in my work upon obstetrics. I do not know how I can possibly give it any stronger utterance. Girls should be thorough and complete women, physically, mentally, and morally, before they become wives. Very few are aware that it is a very rare exception to find a woman perfectly developed in all these respects until between 20 and 25 years of age. Too early marriage is to be reprehended for so many reasons that it would take too much time to point them out.

“Sincerely,

“THEOPHILUS PARVIN.”

From the foregoing expression it is seen that the consensus of opinion of these high authorities fixes the age for women to marry, where all conditions are favorable, at about 18 years. The remark very pertinently made by Dr. Atlee when he says, in qualification, “Please bear in mind that I answer as a physician, and not as a moralist or a political economist,” is doubtless understood in the other cases.

It is likely that there is more ill-health and misery generally caused by men and women marrying too early from an *economical point of view* than from any other single source. Professor Richard T. Ely, in a recent publication, says, “Men who are conscientious will not marry until they feel that they will probably be able to support a wife and bring up children worthily. As popula-

tion becomes denser this postpones marriage, and as the average age of marriage increases, the average number of births will decrease.”

But it must always be borne in mind that all men, and especially young men, do not stop to conscientiously consider this question in all its bearings. They are governed by impulse, and before they realize it may, very often do, lay up for themselves and others life-long regrets. Doctors, who are oftener than all others consulted on questions of this nature, may add amazingly to their usefulness to mankind, if in answering they will be not only physician, but moralist and political economist as well.

Precautions against Small-Pox.¹



MALL-POX (variola) and varioloid are one and the same disease, caused by the same contagium. Varioloid is less severe and rarely fatal, because the system of the patient had been modified by vaccination, but it is just as capable of communicating itself, of being “caught” or “taken” as small-pox. It demands therefore exactly the same

PREVENTIVE PRECAUTIONS.

Vaccination is, of course, the one and only preventive. Fortunately, the people of this Commonwealth are so generally well informed and intelligent that there is no reason to apprehend a repetition of the disgraceful scenes of riot and bloodshed which have in late years been enacted in a neighboring country, in the ignorant attempt to thwart the efforts of the health authorities to check the spread of this pestilence. But carelessness and neglect may reap as baneful a harvest as criminal opposition. Convinced of this, the board at its very first meeting passed a resolution instructing the secretary to prepare a circular, warning the people of this State of the prime necessity of vaccination. Next to the rising of the sun, nothing is more absolutely certain than the fact that *through* vaccination, with *reliable* lymph, repeated with *sufficient frequency*, is a sure preventive against small-pox. And the fact next in order of positiveness is, that *careful* vaccination with *pure* lymph will convey to a person susceptible of small-pox the vac-

¹ Issued by the State Board of Health of Pennsylvania.

cine disease or cow-pox, *and no other disease*. Hence, first, it is important that vaccination should be performed by an educated physician, in order to be assured that the lymph used is pure and reliable, especially if taken from a human being (humanized lymph), and that the vaccination has thoroughly *taken*. Secondly, if bovine (heifer) lymph is preferred, it should be obtained from an entirely reliable source, in order that it may be (first) free from all impurities, and (secondly) active and efficient.

Precautions in Regard to Infants.—Every infant should be vaccinated three months after its birth, unless an educated physician advises to the contrary. Should the first attempt fail, it should be repeated at intervals of a fortnight, until a true sore is produced.

Precautions in Regard to Children.—Every child should be re-vaccinated before it reaches its *twelfth year*.

No child should be allowed to enter any school, public or private, who has not been vaccinated within the specified time.

RULES RECOMMENDED FOR PUBLIC SCHOOL BOARDS AND TRUSTEES.

(1) Every child entering the public schools must give satisfactory evidence of protection against small-pox, or be excluded until the rule is complied with.

(2) The fact of vaccination and protection shall be entered with each name on the school record, and on transfer or promotion lists.

(3) Intercourse between the school and a family or house where there is a case of small-pox must be forbidden until official permission is given.

(4) Every school teacher or school officer who discovers a case of this disease among the attendants on the school must report the fact immediately to the local board of health, or, if there be no local board of health, to the State Board of Health.

(5) All school books, furnished at the public expense, which have been exposed to the infection of small-pox must be destroyed by fire.

Until the Legislature expressly by statute confers this authority on school boards, teachers or officers, the order of this board is a sufficient sanction. Boards deciding to exercise this power should pass a resolution to that effect, and post a notice for at least ten days, in two or more conspicuous places, within the

limits of their respective school board or district organizations. Such notice should offer free vaccination to all who are unable to pay.

Precautions in Regard to Adults.—Every adult should be re-vaccinated at least once in twelve years.

Precautions in the Immediate Presence of an Epidemic.—The State Board of Health recommends that in whatever city, village, or town small-pox appears, the entire neighborhood in which there has been any communication with the patient or exposure to the contagion, shall be notified that the *State Board of Health requires that every person shall be protected by vaccination*; that tramps and other persons suspected of infection with small-pox shall be taken in charge by the police and the sanitary authorities; that employers shall advise their companies of employed persons to be vaccinated, and in case of small-pox in their vicinity, *shall make such vaccination one of the conditions of being continued in employment.* This rule should be strictly enforced in all manufacturing factories that make goods which are liable to become infected, and especially be a standing regulation *in paper mills, in public houses, and among all classes employed on all railroad trains and passenger vessels.*

FORM OF REPORT TO THE STATE BOARD OF HEALTH AND TO THE
LOCAL BOARD.

(Name and age)
is sick with small-pox (or varioloid) at
The eruption began
It is believed the contagion was taken at
by exposure to
Number of persons now exposed to patient
(Signed)
(P. O. address)
Request
.

Such a notice, with the request that needs to be made, should be sent to the health officer or the nearest member of the local board of health. If a physician is already in attendance, he should sign it; but if no physician has reached the patient, the householder and any other person who has charge of the case should sign this first report and request, and send it to the family physician or to the health officer. The physician who first sees the case, or the health officer, should write out such a brief report

and his own request, and send it by mail to the secretary of the State Board of Health.

The board further recommends that municipal authorities shall immediately provide such hospital or place of reception for the sick and infected as is judged best for their accommodation and the safety of the inhabitants, which shall be subject to the regulations of the said authorities, who may cause any sick and infected person to be removed thereto, unless the condition of such person will not admit of his removal without danger to his life, in which case the house or place where he remains shall be considered as a hospital, and all persons residing in or anyway concerned within the same shall be subject to the regulations adopted for the hospital. They shall use all care to prevent the spreading of the infection, and shall give public notice of infected places by displaying yellow flags or printed placards at proper distances, by supervising public conveyances, and by all other means which in their judgment shall be most effectual for the common safety. And whoever obstructs the said authorities, or their agent, in using such means to prevent the spread of the infection, or wilfully removes, obliterates, defaces or handles the yellow flags or other signals so displayed, shall, upon conviction, forfeit for each offence a sum not more than \$100, at the discretion of the court.

Precautions in the Family.—Every member of the family in which a case occurs should be vaccinated afresh.

Precautions in the Sick-Room.—(1) The patient should be placed in one of the upper rooms of the house, the farthest removed from the rest of the family, where is to be had the most complete ventilation and isolation. The room should be instantly cleared of all curtains, carpets, woollen goods, and all unnecessary furniture. The room should be kept *constantly well ventilated* by means of open windows, and of fires, if necessary. The utmost cleanliness should be observed both with regard to the patient and the room.

(2) A basin containing chloride of lime or quick-lime in solution, or some other convenient disinfectant, should be kept constantly on the bed for the patient to spit in. Change the clothing of the patient as often as needful, but do not carry it while dry through the house. A large vessel (a tub) containing a disinfectant solution should always stand in the room, for the reception of all bed and body linen immediately on its removal from the

person or contact with the patient. Pocket handkerchiefs should not be used, but small pieces of rag should be employed instead, for wiping the mouth and nose ; and each piece after being once used should be immediately burned. Two basins, one containing water impregnated with a disinfectant solution and the other containing plain water, and a good supply of towels, must always be ready and convenient, so that the hands of the nurse may be at once washed after they have been soiled by contact with the patient. All glasses, cups, and other vessels used by or about the patient should be scrupulously cleansed before being used by others. The discharges from the bowels and kidneys are to be received, *on their very issue from the body*, into vessels containing a disinfectant, and immediately removed.

(3) No person should be allowed to enter the room except those who are attending upon the sick. A sheet moistened with a strong disinfectant solution and suspended outside the door of the room or across the passage-way leading to it, is necessary to complete the isolation of the patient.

(4) *Boiling is the Surest Way of Disinfecting all Contaminated Clothing.*—A disinfectant should first be added to the water. Any material which cannot be washed without injury should be exposed to a dry heat of about 240° F., or fumigated in a closed chamber, as directed below. A hot-air disinfecting chamber should be provided near all cities, where bed, woollen goods, etc., may be disinfected under the direction of officers appointed by the board of health. All articles which can *possibly* be spared should be destroyed by fire.

(5) *Small-pox* is most contagious during convalescence ; therefore strictly observe that the patient does not mingle with the family until all the scabs are entirely off, and only after a thorough purification by bathing with a disinfectant in the water and entire change of clothing.

(6) In case of death,¹ wrap the corpse in a sheet saturated with the strongest disinfecting solution, without previous washing ; if the means are at hand, inject the cavities of the chest and abdomen with a solution of chloride of zinc or other antiseptic fluid ; and bury it in a deep grave within twenty hours, and without a public funeral.

¹ The body of a person who has died of small-pox should never, under any circumstances, or after any lapse of time, be disinterred.

STANDARD DISINFECTING SOLUTIONS RECOMMENDED BY THE
STATE BOARD OF HEALTH.

(1) *Standard Solution No. 1.*—Dissolve chloride of lime or bleaching powder of the best quality (containing at least twenty-five per cent. of available chlorine) in soft water in the proportion of six ounces to the gallon.

(2) *Standard Solution No. 2.*¹—Dissolve corrosive sublimate and permanganate of potash in soft water, in the proportion of two drachms of each salt to the gallon.

(3) *Standard Solution No. 3.*—To one part of Labarraque's solution of hypochlorite of soda (*liquor sodæ chloratæ*.—U. S. P.) add five parts of soft water.

(4) *Standard Solution No. 4.*—Dissolve corrosive sublimate² in water in the proportion of four ounces to the gallon, and add one drachm of permanganate of potash to give color to the solution as a precaution against poisoning. One fluid ounce of this solution to the gallon of water is sufficiently strong. Articles should be left in it for two hours.

To Disinfect Discharges from the Patient.—Use standard solutions Nos. 1, 2, or 3, keeping a pint of the solution used constantly in the vessel ready for any emergency. Let the discharges be passed directly into the solution, and then let a pint more of it be added, and allow the whole to stand for some time before being thrown into the sewer, or being buried.

To Disinfect Clothing, Towels, Napkins, Bedding, and such Textile Fabrics as can be Washed.—Use standard solution No. 4, one ounce to the gallon of water, or use one gallon of solution No. 1, in nine gallons of water. Let the goods soak in the solution for at least two hours—better four hours—before they leave the room. Stir them up so that the solution gets all through them. After disinfection, boil the goods thoroughly.

For the Disinfection of Water-Closets, Urinals, Sinks, and Cesspools.—Mix one pint of carbolic acid with two and a half gallons of water.

Standard solution No. 4, diluted with three parts of water, may also be used in the proportion of one gallon (of the solution) to every four (estimated) of the contents of the vault. Standard solution No. 1 would require to be used gallon for gallon of the

¹ (1) This solution is highly poisonous. (2) It requires a contact of one hour to be efficient. (3) It destroys lead pipes. (4) It is without odor.

² Corrosive sublimate solutions should be kept in wooden or crockery vessels.

material to be disinfected. Dry chloride of lime may be sprinkled over the contents of a privy, or standard solution No. 2 may be made up by the barrel, and four or five gallons be applied daily during the epidemic.

To Disinfect the Sick-Room after it is Vacated.—Let the room be thrown wide open for several days for a thorough airing. If papered, let the paper be all removed with care. Then let all the walls, the floors, and the woodwork of the room, as well as the furniture, be washed with standard solution No. 4, one pint to four gallons of water, or of solution No. 1 a quarter of a pint to a gallon of water. Let this work be done most carefully, getting the solutions into all the crevices. If any dust be present in the corners and crevices, wipe it out with a rag wet in the disinfecting fluid. *Don't stir it up with a brush or a broom.* Last of all, whitewash the walls and the ceiling.

Sulphur Fumigation.—It is believed in by many as very efficacious, but should not be allowed to take the place of the scraping and scrubbing. It is performed in the following manner: Open wide all the drawers and closet doors. Hang on lines, opened up as much as possible, all the woollen articles which have been in the room during the sickness and which have not been disinfected and washed, then burn two pounds of sulphur for every thousand cubic feet of space in the room. Every opening in the room—flues, doors, windows, cracks, and crevices—must be closed, except the door by which the disinfector is to escape. The sulphur is to be burned in an iron kettle or other vessel set in a tub containing a little water, to guard against fire. A little alcohol or kerosene must be poured upon the sulphur by means of which it may be ignited. Leave the room quickly, for the fumes are highly poisonous when breathed, and close the door tightly. Let the room remain closed twenty-four hours or more. Then air thoroughly for several days.

Kumyss Poisoning.

A number of persons in one of the health resorts of the Caucasus were poisoned last summer by ptomaines in the kumyss which they drank: An investigation showed that the maker had neglected to scald out his barrels, and he was thereupon sentenced to six weeks' imprisonment and to pay the costs of the investigation.

Dangers to Health.

BY GYULA ULLMANN, M.D.,
York, Pa.



R. JOHN ELLIS, in his article in the February issue, as well as Mr. S. T. Frary, of Cleveland, in his article in the July number of the ANNALS OF HYGIENE, are perfectly right and just in recommending the use of whole wheat-flour. It would certainly benefit the young and the present generation. But I would not give all the discredit to the white flour. It is more the use of all kinds of candies, chewing-gums, etc., which irritates the digestive organs, and so spoils teeth, bones, and muscles. I have children who occasionally get Graham bread too, but the greater part of the time they eat white bread, which Dr. John Ellis, in the *New York Tribune*, decries so much, and their bones, their muscles, and their teeth are in splendid condition. Only the bread we eat is home-made, and not baker's bread; and besides this, they are not allowed to eat candy at all and but very little sugar in general; no peanuts, no chewing-gum, and no crackers. Their digestive apparatus is as regular as the best clock in the world.

Certainly there are more nutritive elements in the whole wheat-bread than in the white; but it is in vain to attempt a crusade against white-bread. What we should do is to preach against the way the white, as well as the Graham bread, is made by the bakers. Often and very often I have had patients with inflammation of the digestive apparatus, where the origin of the trouble could be traced directly to the baker's bread. And when once I spoke to a baker here about his unhealthy bread, I was answered, "The . . . flour comes already adulterated, I do not put anything in it." To which I simply replied that in my household we use the same flour as you do and we never noticed any adulteration, as you have in your bread. There was no answer, but a long, unpleasant face.

There ought to be a national health bureau, whose principal duty should be to watch over millers, bakers, cracker factories, candy factories, etc., with draconic laws as a weapon against adulterators. It is not so much the kind of bread, but how it is made. It should be wholesome and unadulterated, so as not to interfere with the public health.

Sugar Diet and Muscular Strength.

BY N. A. WHEELER,

Alpowa, Washington.



MY past and present personal experience and observation in the performance of muscular labor under the consumption of sugar as food, happily corresponds with the recent experimental researches and conclusions of Dr. V. Harley, as given in *THE ANNALS* for August, 1894.

In the winter of 1863, another man and myself started on foot into the mountains of eastern Oregon to find three supposed lost men. We carried rations for two days, and this food was all consumed at the close of the second day. At nightfall, on the third day, an uninhabited log cabin was reached and both of us were very tired and hungry. The apparently lately, abandoned gold-miner's cabin was thoroughly searched for food. Fortunately for myself and unfortunately for my companion only an oyster-can full of brown sugar was found. I ate some of it, and it revived me, but my partner would not touch it. We slept here the night of the third day, and on the morning of the fourth I felt quite strong, and ate more of the sugar. My companion persistently refused to eat it, saying, "There is no food in sugar." I ate it all before we left the cabin,—about one-half of it being dissolved in snow-water and drank,—and felt as strong as on the first morning of our departure. My companion, six feet in height and 180 pounds in weight, a much stronger man naturally than I, gave out completely exhausted after five hours of very laborious travel, on the fourth day, through snow from sixteen to twenty-four inches deep. Rest for several hours and repeated assistance from me through the deeper snow-drifts enabled him to reach camp as a very weak and hungry man, while I was unusually strong, with no feeling of fatigue or hunger. That oyster-can full of sugar did it; and many times since that event my strength and power for action in long-continued compulsory muscular endurance have been wonderfully increased under the influence of sugar and water, unaccompanied with that debilitating reaction which inevitably follows the imbibition of whiskey.

Graham Bread.¹

BY DR. G. BARDET.

AN article published in the *Bulletins et Memoirs de la Société de Thérapeutique* eulogizes Graham bread as exceeding white bread in nutritive value, and concludes that this kind of bread should be used exclusively by those who from habit or from hygienic motives eat little or no meat, and especially by the constipated. The author regards Graham bread as an indispensable part of the vegetarian regimen.

Analyzing the bran which is lost in the manufacture of white bread but which is retained in the fabrication of Graham flour, he affirms that "it contains more nutritive substance than fine flour, and that it is richer in azotized matters, fats, and salts." . . . Moreover, it contains (by the germ) a notable proportion of soluble albuminoid matter and a small amount of a laxative oil which gives it a value to the constipated. In fact, it is this oil which makes Graham bread anticonstipating.

In Graham flour, properly made, the bran is ground so fine that no coarse particles are visible, all the ingredients of the grain being intimately blended together. Bread made from such flour cannot irritate the intestines by the presence of the bran, and the nutritious properties of the latter are all utilized. It is well known that Bouchardat, who recognized the advantages of Graham bread, discarded it on account of the difficulty of obtaining unbolted flour in which the bran was ground to a sufficient degree of fineness. This objection, in view of the perfection of the miller's art to-day, can hardly be considered as valid now.

Graham flour, according to M. Bardet, should be made from hard wheat; what has given the best results is the Russian wheat, rich in gluten. In the process of grinding, the bran is first separated from the meal, then ground by two separate sets of stones to an almost impalpable powder, and the two products are then intimately mixed; such flour makes a bread which is quite brown. The kneading should be prolonged and thorough, in fact, more time and pains are necessary than in the fabrication of fine flour

¹ From the Boston Medical and Surgical Journal.

bread, and (according to Bardet) less yeast. The well-kneaded dough is left at rest for about fifteen minutes, then subjected to a prolonged baking (an hour and a half for a four-pound loaf, instead of forty-five minutes, the time requisite for white bread). There is thus obtained a loaf "which is well raised, with a pronounced wheaten odor, of agreeable and sapid taste, of easy digestion, keeping well for several days, and much more palatable when it is stale." Such bread contains forty per cent. of azotized matter, instead of twenty-four to twenty-five per cent., the quantity in fine flour bread. It has also an excess of starch, which makes this kind of bread bad in dyspepsias which are purely stomachal, while, on the contrary, it is preferable to any other bread in dyspepsias that are intestinal and attended with constipation.

It will be remembered in this connection that Liebig, many years ago, remarked that "many millions more men could be daily fed in Germany if it were only possible to persuade the population of the advantage which bread made of unbolted flour has over that ordinarily eaten."

The conclusions of Dr. Bardet do not differ essentially from those obtained several years ago by Drs. Randolph and Roussel, who published in the *New York Medical Journal* an exhaustive study of the nutritive value of branny foods. From an economic stand-point the question of the nutritive value of bran is one of great importance, for the removal of this portion of the wheat implies a loss of from seventeen to twenty per cent. in the weight of the grain. The writers, in endeavoring to account for this custom of using the more expensive white bread instead of that which is more nutritious, if not more wholesome, emphasize the difficulty of obtaining a good product from the whole wheat and the greater ease with which really good, light, and savory bread can be made from the finest flour. Moreover, in the earlier attempts to make unbolted flour bread, the presence of the rough bran scales made this bread relatively innutritious by increasing peristalsis, and so hastening the passage of the entire intestinal contents, that complete digestion and absorption were prevented.

Edward Smith has also closely studied the economic phase of the subject, and reports unfavorably upon the use of branny foods, stating that the diminished absorption of nutritive matters entailed by their use more than counterbalances the apparent gain in cheapness.¹

¹ Foods, 1875, p. 175.

According to Drs. Randolph and Roussel, the end which popular hygiene attempts to effect by the retention of bran in bread-stuffs can be better attained by other means. Thus, the nutritive salts lost in the bran are readily restored by the ingestion of rich soups and broths ; and the various fresh, green vegetables used as salads yield in abundance those inorganic food stuffs the presence of which is indispensable to normal tissue activity. A further advantage of these and other succulent vegetables lies in the fact that their cellulose, while efficient in giving proper bulk and consistence to the stools, is, as compared with bran-scales, soft and unirritating to the digestive tract.

Doubtless, as Dr. Bardet has observed, the principal objection against the economical and wide-spread use of Graham breads will be removed when the more perfect methods of grinding the wheat are substituted for the faulty methods formerly in vogue. The Graham bread of to-day should be macroscopically and microscopically free from all coarse and branny particles. Such bread cannot be called irritant to the intestines, and should be about as easily digested and assimilated as white bread.

House Heredity.¹

NEARLY twenty years ago the writer was consulted by an elderly gentleman from Canada, who, in explaining his case, remarked, "Doctor, I do not know what your opinion is respecting my case, but my opinion is that I have inherited consumption from my wife. My wife died ten years ago from consumption, and I have not been well since." Fortunately the poor man was not suffering from consumption, although he had a serious pulmonary disorder which gave occasion to a chronic and very troublesome cough. The fact that he was suffering from a disease of the lungs, which, to his unscientific observation closely resembled the disease from which his wife had suffered and died, led him to think there must be some connection between his malady and that of his wife,—and there might have been, although the relation would be more scientifically expressed by the term "contagion" than that of heredity, however, considering the ordinary use of the term "in-

¹ From Modern Medicine.

herit," the application was not such a bad one, after all. The poor man's wife had died of a lung-disease, and after her death he found himself suffering from what seemed to be a similar malady, so it was very natural for him to suppose that it had been bequeathed to him by his dead companion.

In a similar sense, houses may be said to inherit disorders of various sorts from their occupants. In this way houses become infected with tuberculosis. A case was recently reported in a French journal, in which several children died one after another of a tubercular disease without any apparent cause. An investigation showed that the house into which the family had recently moved had previously been occupied by a family, one member of which had died of consumption. The house had not been disinfected, and as the children spent most of their time in the room occupied by the invalid, there was every opportunity for the operation of contagion.

Another case recently reported illustrates the same principle. A man living in a boarding-house of the lower class, in Paris, after a lingering illness died of consumption. The bed which he occupied was taken by another man, who, after a few weeks, also became affected by the same disease and subsequently died. Investigation showed that, in this case, the bed was infested with bed-bugs, which had, by subsisting upon the dried sputa of the patient, become infected with the disease, and, by biting the patient, had inoculated him with the specific microbe of consumption, thus leading to the development of the disease in a general and acute form leading to a speedy death.

Many similar instances might be reported. Sometimes the morbid condition which exists in a house may be due, not immediately to the previous occupant, but to local conditions, the existence of which may not be easily recognized, but would at once become apparent if one should take the trouble to investigate the pedigree or heredity of the house by inquiring after the health of its previous occupants.

A remarkable instance illustrating this occurred in the writer's experience a dozen or more years ago. A gentleman who had recently moved into a fine, large brick residence called our attention to the fact that when moving into the house, he found written in large letters upon the walls of nearly every room the words, "This is the malaria house. Look out for malaria," and similar expressions. Within five months the gentleman himself was

stricken with malarial fever in a pernicious form, and died within a few days. As soon as the writer learned of the circumstance referred to, which was not until after the beginning of the patient's illness, he insisted at once upon moving the patient to another and more salubrious locality ; but it was too late, as the mischievous work of the disease had already proceeded so far as to produce irreparable damage to the brain.

In the case last mentioned, the house, a large, roomy one, was situated upon a hill in a very sightly place, but unfortunately within forty rods of a mill-pond, the water of which at certain seasons of the year became low and stagnant, exposing many acres of slime-covered soil, a most effective breeding place for malaria. Under ordinary circumstances even this unfortunate condition gave rise to no inconvenience, as the pond was situated southeast of the house, while the prevailing wind was from the southwest. At the time when the fatal illness occurred, the southeast wind had been blowing steadily for two or three weeks, the water in the pond being at the time very low. This was unquestionably the cause of the gentleman's illness and death. The germs of typhoid fever not infrequently cling to a residence for many years, so that deaths occur in one family after another which successively occupy the house, each succeeding diseased family being often in ignorance of the previous fatalities. When a well once becomes infected with typhoid fever germs through the seepage from an adjacent privy vault, cleaning out the well amounts to nothing, as it would generally be necessary to clean out a space bounded at the surface by a circle with a diameter three times the depth of a well extending down into the earth to the bottom of the well, or at least below the water level. Such a mode of cleaning a well is of course impracticable. The only thing to be done with a well which has become infected with typhoid fever germs is to close it up. It is impossible to have a well upon such premises, or even near by, which will not be in danger of similar infection.

A very forcible illustration of the necessity of inquiring into the previous history of a house before taking possession of it was recently furnished by a Philadelphia physician. In making a careful study of the causes of death in the older and principal wards of the city he found that the deaths from consumption were largely confined to a certain number of houses. These houses were for the most part arranged in groups, showing that the disease had extended from one house to adjacent houses.

Apropos of this subject, the writer many years ago suggested that the health officer of every town should keep a register in which should be represented every house in the town or city, in connection with which there should be kept a complete sanitary history of the building, which should show every case of sickness from whatever cause, whether chronic or acute, and all cases of death, with the causes of death.

Dr. Ernest Hart on Tea.¹



R. ERNEST HART, editor of the *British Medical Journal*, recently delivered a lecture on the subject of tea, coffee, and cocoa, in which he gave an interesting history of the introduction and a description of the production of the different varieties of tea and coffee. The special point to which we call attention is Mr. Hart's statements respecting the question of tannin in tea. He gave the result of an extended series of experiments which quite contradicts the current views upon this subject. The idea has been quite generally propagated that by the long contact of water with tea, an excessive amount of tannin is extracted, which may be avoided by the infusion of the tea for only a short time, as ten or fifteen minutes. It has been found by actual experiment that after the exposure of tea to the action of hot water ten or fifteen minutes, little or no tannin can be extracted. The extract obtained after the first fifteen minutes has a disagreeable flavor. But, contrary to the popular notion, this extract does not contain any excess of tannin. Tannin is an exceedingly soluble substance, being so highly soluble, in fact, that its solution begins the instant the tea leaves come in contact with the water. The pale infusions of tea made in three minutes are found to contain a large proportion of tannin.

Dr. Hart entirely agrees with Sir William Roberts in the view that the ill effects of tea drinking are due to theine and the volatile extractives of the tea-leaf, and not to tannin. It is also stated by the lecturer to be an error to suppose that common teas contain a greater amount of tannin than the so-called choice varieties. The very opposite of this is true in many cases.

¹ From Modern Medicine.

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COMMUNICATIONS SOLICITED.

We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year free.

Oxygen.

WHEN, some years ago, Bergeon suggested rectal injections of sulphuretted hydrogen gas for the cure of consumption, and when, later on, Koch announced his supposed discovery of a specific material, the injection of which would cure this disease, both the scientific world and the general public were so eagerly willing to accept these announcements that it would have required but a small amount of corroborative evidence to have fixed them firmly in public favor.

When a manufacturer puts oxygen into a cylinder and charges ten cents a gallon for it, the public buy and use it; when nature supplies oxygen free of cost, easily and at all times accessible to any and every one, the people are afraid of it, and shut themselves away from it as they would from a wild beast.

Life for weeks without food and for days without water is possible; life without oxygen is not possible for five minutes; the more oxygen one inhales the more vigorous is his life; the less he inhales the less good is his health. Oxygen, a vital necessity, costs nothing, and the people are afraid of it. Whiskey, the most potent cause of disease, costs money, and the people rush for it. What does this mean? There must be a screw loose somewhere. Why do human beings fear and shun the open air, shutting themselves up in houses, and shutting out therefrom all

air that patent blinds and fashionable draperies can manage to keep out.

This is not the first time that we have written about air and oxygen; indeed, we have said so much on this subject that we fear some of our readers may lose patience, but the longer we live and the more we observe humanity the more mystified are we and the less can we understand why it is that human beings have such a poor appreciation of the value of oxygen.

You have all heard, no doubt, of the "*red blood-corpuscles*." Well now, let me tell you what a blood-corpuscle is. It is a little express wagon, if you please, only $\frac{1}{3600}$ of an inch in diameter, and it is continually circulating everywhere throughout the body. The chief duty of this little body is to receive a supply of oxygen in the lungs from the air that we inspire, and to transport this oxygen here, there, and everywhere, to the most remote portions of the body.

Every tissue and every particle of tissue in your body requires oxygen. With all that the word *require* means, it is not only that tissue *likes* oxygen, but it *requires* it. It must have it. Without it life is impossible, and without an abundant supply of it healthy life cannot be.

In a human being of average weight there are about 2,500,000 of these corpuscles, or little express wagons, continually engaged in the transportation of oxygen from the lungs to the tissue of the body.

Will not the appalling magnitude of these figures make you realize how necessary is oxygen to the healthy life of the body, when it requires such an infinite number of transportation vehicles to satisfy the demand?

Every physician who is familiar with the literature of his profession can tell you that consumption has been cured often and often by out-door life and lung exercise, which means nothing more than an abundant supply of oxygen to the lungs and the body. No intelligent physician can prove the cure of *one single case of consumption* WITH DRUGS without the aid of *fresh, pure air, which means oxygen*; yet every physician will tell you that while his consumptive patients will willingly swallow gallons of drugs, it is next to impossible to induce them to consume oxygen. They are afraid of fresh air, and no amount of argument or persuasion can overcome this fear.

It is pitiful to daily see persons paying enormous fees to

doctors, swallowing large draughts of nauseating drugs, and going "down hill" all the time, when what they require, and the only thing that will do them any good, is fresh air.

But, says some poor consumptive, I go out every day (in fine weather) *for an hour*; and where do you pass the remaining twenty-three hours?

When the wife of the late Dr. Dio Lewis first displayed signs of the family disease, consumption, the doctor determined to cure her. Instead of buying a gallon of cod-liver oil, he bought a pair of thick-soled shoes, so that she might be out-of-doors in all kinds of weather; then he started in to chopping wood while his wife sawed it. Mrs. Lewis was then thirty odd years of age. Now she is alive at eighty-three, and tells us that a daily walk of ten miles is but "pleasant recreation."

Would it not seem that one such case ought to make us all converts to the doctrine of "fresh air;" yet, while this case can be paralleled by thousands, the fact remains that drug-taking is infinitely more popular than air-taking.

Deprive a burning candle of oxygen and the flame is extinguished; shut off the supply of oxygen from your kitchen range and you will eat a cold and only partly-cooked breakfast; deny oxygen to your body and you are a healthless grumbler. Oxygen is an absolute essential of all life, and it would be well for the human race if they would only come to fully realize this fact.

Common Sense.

A PATIENT recently consulted us, suffering with chronic catarrh of the stomach. Everything that was eaten was very shortly afterwards rejected. Constant vomiting had reduced this man to the proportions of a skeleton. To our query as to whether he was dieting himself, he replied in the negative, telling us that he was allowed to eat anything that he desired.

When asked what he would think of a man who, with an inflamed eye, would keep constantly rubbing it, he replied that, of course, the eye could not get well.

But he failed to understand that the man who rubs an inflamed eye with his finger and the man who rubs an inflamed stomach with indigestible food belong in the same boat. An essential in the treatment of all inflammatory conditions, be it of

the eye, the stomach, or the toe, is rest, and without rest the inflamed part will never get well.

The dyspeptic who eats indigestible food will be always a dyspeptic; the dyspeptic who confines himself to easily-digested food will soon cease to complain of dyspepsia. This is "common sense," and this is all there is to it.

Sea-Air and Skin-Diseases.

A RECENT extract, quoted from the *London Lancet*, to the effect that skin-diseases, and especially eczema, are generally aggravated by sea-air, has called forth a statement from Dr. G. W. Williams, of Germantown, who takes issue with this assertion.

His experience has just been the reverse of this. He had eczema on both hands for some three years, and after trying a great many remedies in that time, finally, about a year ago, went to the sea-shore for a fortnight, and he believes that he has thereby made a permanent cure, as he has not had a return of it. Whether it was the sea-bathing or the sea-air he is, of course, unable to say.

Rewards for Fecundity.

The Province of Quebec has a law bestowing 100 acres of government land upon every father of a family who has twelve living children, issue of a lawful marriage. Up to the present, 174,200 acres of rich agricultural land have been given away in bounties to 1742 fathers of twelve or more children, who have complied with the conditions of the act. Not all of these proud fathers, however, are satisfied with the amount of the bounty, for instances of families of twenty or more children are not rare, and the fathers of these want a proportionately higher reward for their patriotic efforts. One old gentleman, Mr. Paul Belanger, of River du Loup, wants 300 acres, and bases his claim upon the fact that he has thirty-six living children. Another claimant for an increased allowance is Mr. Theoret, of St. Genevieve. His wife, who is but 30 years of age, has presented him with seventeen children. She has just given birth to triplets for the second time in five years, and has had twins three times. Mr. Theoret hopes to acquire a large portion of the Province if his wife will continue to do her share.—*Medical Record*.



The Plague Bacillus.

Dr. Kitasato, the Japanese bacteriologist, has been investigating the plague in Hong Kong, and believe she has found the cause of the disease in a bacillus resembling somewhat that of anthrax. It consists of short, slender, straight rods. Animals inoculated with cultures of this micro-organism died with symptoms of the plague.

Microbes on Post-Cards.

The latest scare in microbes has been started by Professor Uffelman, of Rostock, who infected a letter with cholera bacilli and put it into a post-bag. When the letter was taken out, twenty-three and a half hours later, the bacilli were still alive. Bacilli were also found living on post-cards twenty-four hours after infection. The micro-organisms were found to die rapidly when placed upon coins. A fly charged with cholera bacilli was afterwards placed on some beef. A little later the meat was found to be swarming with bacteria. A finger was infected with cholera bacilli and dried. One hour later the finger was rubbed on some roast meat, and numerous bacilli developed subsequently. The moral of all these experiments is obvious.—*Medical Record*.

A Foe to Health and Life.

While we are making rules and regulations against small-pox, diphtheria, scarlet fever, consumption, etc., and invoking the aid of the law, and the co-operation of all good people in their enforcement, we overlook a greater foe that is in our midst, and with which we are so familiar that its ravages are overlooked, underrated, or assigned to other agencies,—a foe to health, to life, to prosperity, and to happiness—a foe that transforms its victims into objects of loathing rather than of pity, a foe so destructive to human life that statistics declare it causes a death-rate in the

United States alone of 120,000 annually ! This foe is as cosmopolitan as consumption, renders its subject more loathsome than small-pox, far more fatal than diphtheria, and "at the last, biteth like a serpent and stingeth like an adder." Of course we mean alcoholism. There is apparently a great inconsistency in our actions. While we quarantine and disinfect and vaccinate against the diseases above named, to prevent their spread and to stamp them out, we, for a consideration, protect and defend this greater foe to health, and let its infectious properties and influence riot at will,—regardless of the exposures to the infection that are daily taking place. The strange part is that the lessons of the past do not deter others from recklessly exposing themselves. They imagine that by some peculiarity of constitution they can subject themselves to the infection and yet escape the disease ; or contracting the malady, they can easily be cured. Both propositions are delusions and snares. It is true some do, but the number is few, and the cure expensive and lingering. The only hopeful and real satisfactory reflection about this malady is that it can be easily prevented. The remedy is perfectly reliable, has never failed, and is within the easy reach of all. It is to keep the mouth firmly closed against the ingestion of alcohol,—never to let any of it get into the stomach, or, having unwillingly gotten there, never to allow a repetition of the experiment. It is worth a faithful trial. Now that so many cities in our fair State have been permitted to establish these pestiferous places and to invite the susceptible to fatal inoculation, all sanitarians and humanitarians, all lovers of decency as well as of good health, should use all legitimate efforts not only to cure the infected, but to exterminate this baneful and too prevalent malady.—*Iowa Monthly Bulletin.*

The Inexorable Facts of Heredity.

"I have drunk whiskey every day for thirty-five years," remarked a gentleman of 60, rather proudly, "and I don't see but I have as good a constitution as the average man of my age: I never was drunk in my life." He was telling the truth, but to learn the whole truth you would have to study his children. The oldest, a young lady, had perfect health ; the second, a young man, was of remarkably nervous and excitable temperament, as different from his phlegmatic father as possible ; the third, a

young lady of 17, was epileptic, and always had very poor health. Did the father's whiskey drinking have anything to do with these facts? The instance may be duplicated in almost every community. Think over the families of your acquaintance in which the father has long been a moderate drinker, and observe the facts as to the health of the children. The superintendent of a hospital for children at Berne, Switzerland, has found by careful observation that only 45 per cent. of those whose parents used intoxicating liquors habitually had good constitutions, while 82 per cent. of the children of temperate parents had sound bodies. Of the children of inebriates only 6 per cent. were healthy. Can any man "drink and take the consequences?" or must his children take the consequences?—*Quarterly Journal of Inebriety*.

The Clergy and Public Health.

The Tennessee State Board of Health has issued an address to the clerical profession upon their relations to public health. Among other things to which the attention of the minister is directed we excerpt the following relation to *public funerals*:

Upon one special topic the public needs enlightenment, because here the natural affections tend to thwart the teachings of science, and just here ministerial influence would be all powerful. Reference is had to the importance and necessity of private funerals in all cases of death from communicable diseases. In many cities and States public funerals in such instances are prohibited by law, and the law very strictly enforced. Whether such statutes do or do not exist, yet it is plainly the duty of every clergyman to carry out this precaution. Medical journals abound with records of virulent epidemics caused by attendance upon funerals when the parties owed death to scarlet fever, diphtheria, or other communicable affections. This point needs no elaboration. The clergyman always has the power to prevent a public funeral by simply refusing to attend one when the cause of death demanded a private funeral. By a public funeral is here meant one to which others than the inmates of the house in which the death took place, or the immediate family of the deceased, are invited or admitted, whether in the house or in church, chapel, or other building.

To the end, therefore, of removing this specific evil—this

always serious menace to the public health—the State Board of Health asks the attention of ministers of all denominations, and of every order throughout Tennessee, to the subject, and earnestly solicits their aid in bringing about a reform so urgently needed as the abolishment of the public funeral whenever death was from a communicable disease.



An Aggravated Case of Lithæmia Treated with Buffalo Lithia Water of Spring No. 1.—By Wm. A. Hammond, Surgeon-General, etc., Washington, D. C.

G. H. M. has been suffering for nearly three years from symptoms which thorough examination showed were due wholly, or at least in great part, to lithæmia. He had never had any attack of gout, but his father and paternal grandfather had to his knowledge suffered from repeated aggravated attacks of this disease, and finally died from it. The morbid phenomena in this case were manifested in the nervous system, the digestive apparatus, and the small articulations. The first consisted of a dull, persistent pain in the occiput, great mental depression, sometimes of such an extreme degree that the question of suicide was seriously considered, and of neuralgic pains in various parts of the body, mainly along the course of the sciatic and crural nerves. Besides these, there were sensations of numbness in the ends of the fingers in both hands, which he compared to that which he occasionally felt when the hands had been for considerable time immersed in hot water.

The symptoms connected with the digestive system were experienced in the stomach and intestines. There was nausea, especially after eating, and occasionally the entire meal would be vomited soon after ingestion. In addition, there was a constant source of distress, mental as well as physical. Various systems of dieting had been tried, but without any appreciable benefit. In fact, it appeared to make no difference what kind of food was taken, or even if complete abstinence were practised, the nausea and pain being unaffected.

The disturbances about the joints were confined to the digital articulations of both upper and lower extremities, especially of the terminal phalanges. These were swollen and tender to the touch, and soreness extended

up the dorsum of the phalanx as far as the next joint, and at times being red and exceedingly painful even when not used or touched.

The urine was high-colored and with strong acid reaction, and not exceeding thirty ounces daily. On allowing a portion of it to stand in a test-tube, crystals of uric acid were in one hour deposited on the sides of the tube. These on microscopical examination showed the greater part of the forms consisting of aggregations of long narrow crystals united at the extremities so as to closely resemble sheaves of wheat in appearance.

I have always found that when uric acid is present in large quantity in the urine these crystalline forms are generally present to the exclusion of the yellowish rhomboid tables usually met with. The dumb-bell and octahedral crystals seen are oxalate of lime.

The patient has been under the care of several physicians, and had been subjected to the treatment that has in many cases of lithæmia proved successful,—*i.e.*, dieting, the avoidance of highly-nitrogenous food, of soda, phosphate, etc., but without much effect. I determined, therefore, to treat him experimentally with the Buffalo Lithia Water, using for this purpose the water of Spring No. 1, the beneficial properties of which in this direction were not altogether unknown to me. I directed him, therefore, to drink two bottles (one gallon) a day, and while I prohibited all alcoholic drinks, I placed no other restrictions on his diet in other respects.

This treatment was continued for two weeks, during which period the spontaneous separation of uric acid crystals became gradually less. After the third day they no longer consisted of aggregations of long narrow crystals, but had assumed the ordinary colored rhombic forms. On the seventh day spontaneous separation no longer occurred, and at the end of two weeks the amount of uric acid as determined by the addition of hydrochloric acid to the urine was not above the normal mean. With these changes the symptoms of all three groups progressively diminished in intensity, the swelling and tenderness of the joints being the last condition to disappear.

Of course, this gentleman is of strongly-marked gouty diathesis, and it will be prudent for him to drink a bottle of Lithia Water every day for several months, and even after that period to use it for several days in every month. With these precautions and the avoidance of alcoholic liquors, I see no reason to dread the relapse.—*The New England Medical Monthly*.

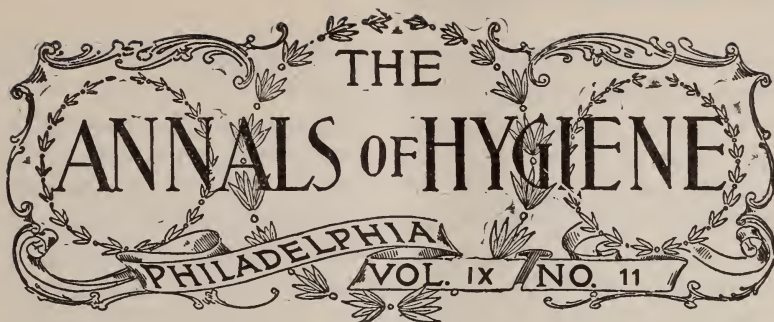
Thirty Years' Experience.

For thirty years I have used *Syrup* of the *Hypophosphites* and Churchill's Formula since its introduction to the American market through Dr. McArthur. It is certainly one of the best, if not the *best*, I have known in the practice of medicine.

It is remarkable for its combination of all the ingredients which are so well blended together in it, and gives *satisfaction* to the *patient* and *success* to the *practitioner*.

HENRY E. DWIGHT, M.D.

PHILADELPHIA, June, 1894.



COMMUNICATIONS.

Some Aspects of the Proper Food Question.

BY JAMES WOOD, M.D.,

Brooklyn, N. Y.

NONE should certainly be much interested in the subject of that upon which they depend not only for health, strength, and happiness, but for very existence,—food. This interest may be centred in different phases of the subject, such as digestibility, palatability, sources from which the supply is secured, the economy in its preparation and use, and many more. In whatever department the attention finds attraction there will be found much demanding serious and discriminating thought.

No doubt the first thing which will surprise one is that there exists two distinct schools of teachers, one propagating the theory of vegetarianism, the other showing that such a position is radically wrong, unscientific, impracticable, and absurd. Which is right, you will have to decide. Your decision will depend on your knowledge of the subject. In food, as in religion, a little knowledge is dangerous and bringeth one's mind to absurdities and vegetarianism; but depth in information bringeth one to believe in the animal organism as the source from which to obtain the most perfect diet. Nor does the above declaration savor of bigotry. If vegetarianism is founded on fact, then our physiological and clinical laws are deceivers, for the two do not harmonize and are in most points at a divergence. This is empha-

sized by the difference in the digestibility of food-stuffs from the two sources,—the animal and vegetable.

The percentage of the truly nutritious part—the proteid—of meat, eggs, milk, etc., which the human organism is capable of digesting, ranges from 92 to 97.5, while the proteid in potatoes, beans, and bread is from 68 to 80 per cent. only,—a difference of from 15 to 25 per cent. in favor of animal proteid food principles in point of digestibility. This difference can never be overcome or even ameliorated, because we have a synthetic proteid to deal with in the vegetable one, whose construction is less complete than the refined proteid, or that form of proteid which has become concentrated and a part of an animal organism.

It is very doubtful—in fact, there is more proof against than in favor—whether the fats and oils of vegetable origin are digestible by the human organism. The very complex forms, strong atomic cohesion, and large array of fatty acids mitigate against its utility as an economic food-stuff. This will probably seem very hard to that peculiar esoteric class of anti-evolutionists who desire us to look backward at the primitive man for guidance in things dietetic and data with which to regale the type found extant in this nineteenth century. They still persist in using nuts and fruits. Fruits have been classed with the nuts, and we will speak of them at this time for the reason that my attention was lately called to an enormous amount of lecturing being done by certain people—mostly women—on the subject of diet and proper food. First let us consider the fruits and then the lecturers.

The fruits are composed largely of water, 80 to 90 per cent., and sugar, 4 to 24 per cent., in round numbers, neither of which is nutritious, as we understand the right acceptance of that term. The actual amount of nutriment which can be obtained from any of them is less than 2 per cent. Fifty per cent. only of this is digestible, so that fruit contains from a fraction to 1 per cent. of nutrition. If space would allow, a very interesting problem in economics could be demonstrated here, and show to the astonishment of a good many people the immense extravagance of regaling one's palate with such delicacies. But who promulgates such theories in favor of that mode of feeding? Their proper status in the scientific world is very hard to determine. We find them and their notions heralded by the daily press, and no doubt for the reason that a true scientist will not answer statements purporting to be interviews with or extracts from the

lectures of these people. If we are to notice that which appears and which they acknowledge, since they do not deny the same, certain inevitable conclusions are forced upon us,—namely, the lack of elementary knowledge, not only in dietetics, but in chemistry, physiology, and ethnographic data. This knowledge is absolutely essential, and no condition in other lines can replace it. Some of them evidently have done some cooking, but usually more reading, for we find classical references galore. The larger number have a very meagre apprehension of what the interior of a physiological laboratory looks like, or how the few facts of which they read were secured. How people equipped with such an armamentaria can so successfully estimate or even gain the attention of the thinking and reading public is only another example of how little is known on the subject. We are much encouraged, however, that the fact of their reading of or attending such lectures implies an interest which should be satisfied with wholesome information, conclusions which are drawn from facts, or theories which do not too strongly offend the accepted idea of common sense. Instead of filling people's brains with such assertions as that the Japanese are mild mannered and "do not use harsh words because they are rice-eaters," or that salmon, blue-fish, and shad are excellent brain-foods because of the amount of "phosphorized elements" (?) which they contain, let the elementary, practical, and useful information be spread more widely and thoroughly among all classes.

It is not the desire or innate enjoyment of the writer to upset such firmly-rooted ideas as that of the relation between mentality and piscatorial delicacies; they satisfy the longing to be deceived; but really, when the assertion, which started in a joke, is time and time again seriously quoted by lecturers, and just as rapaciously swallowed by a pseudo-scientific following, which many such have, an insertion of the *Galaxy* letter to "young author" may be pardoned. If the reader will insert the words "many lecturers on food and dietetics" for "author," it will be more to the point.

"Young author,—Yes, Agassiz does recommend authors to eat fish because the phosphorus in it makes brains, so far you are correct. But I cannot help you to a decision about the amount you need to eat,—at least with certainty. If the specimen composition you send (if the lecture many of us have listened to) is about your fair, usual average, I should judge that perhaps a couple of whales would be all you would want for the present.

Not the largest kind, but simply good middling sized whales." Comment is unnecessary.

What can be said of those who teach that bananas are the only diet that one should eat; that the value of a food "depends on and is as it is indigestible;" that one should eat that which agrees with him, regardless of other conditions; that the teeth are a criterion of the kind of food needed; that the eating of meat is an evidence of savagedom; that the abstaining from such cruelty as killing animals for food is sanity, nay, divine; that vegetables, cereals, fruits, and nuts are the food-stuffs *par excellence* of civilized man, what can be said? In reply we can say only this, that from all appearances—and we feel that we are not deceived through the agency of improper selection of food-stuffs and their use—a perverted organic structure was engendered which prepared this mental phantasmagoria, and by it the trusting public are entrapped and hoodwinked into believing the shadowy forms a special delegation from the astral regions and the couriers of undoubted facts. The same untoward fate awaits these theories as overtook the nebular theory of life, and it is only to be hoped that they will be hurled as far into oblivion,—*Judicium Dei*.

Whatever impression may have been conveyed by some of the assertions already made which would seem to be inimical to the gentler sex projecting scientific truths, the fact is still paramount that a great field is open for fruitful work by our opposites. If they could but realize that they hold the destiny of our land in their cook-book, how much more noble and grand would be the results which they could obtain in this sphere than in that of politics. Woman has a domain in the household which is at the very heart of the economy, health, happiness, and aspirations of our nation, and if she is to reign supreme she must bend every energy towards the thorough mastery of her task.

Sterilization of Doctors.

It has been proposed by Gutmann that stations be erected in convenient localities in cities and large towns where physicians may go to be thoroughly disinfected immediately after they have visited a case of infectious disease, and before paying any further visits. The operation will take about fifteen minutes, and then the doctor may go about his business, proud in the consciousness of being clean and no longer a menace to the health of his fellows.

Borderlands and Crankdom.¹

BY JAMES WEIR, JR., M.D.,

Owensboro, Ky.



WHEN that bilious critic and merciless crucifier of human foibles, Carlyle, wrote that nine-tenths of the world were fools, he was much nearer truth than most men think. When we take an introspective view of our sane personality, we shudder to see how near it is to the borderlands of insanity and the bizarre and eccentric world of crankdom. There hardly lives a man who does not possess some eccentricity, or who does not cherish, hidden, perhaps, deep within himself, some small delusion, which he is ashamed to acknowledge to the outside world. Social relations and the iron rules of custom hold in place the balance-wheel of many a disordered mind. The mental equipoise is kept at the normal standard only by the powerful aid of the will, supported and assisted by extraneous adjuvants, such as fear of punishment, fear of personal harm, and, above all, by the fear of ridicule. Many a man hugs his delusions closely to his heart, indulges them only in the secret recesses of his soul, and, their sole owner and acquaintance, carries them with him to his grave. Any man who has a retentive memory, and one capable of minute analysis, can look back in his life and recall moments when his insane personality got the better of his will, and ran riot in forbidden pathways. He may not have committed an insane act. Yet the thought, the impulse, the delusion was there, and only outside influences kept it from breaking forth. Who fails to remember certain times in his life when he has had an almost overpowering desire to cry out in church, or to laugh on some sad or solemn occasion; or, having a razor in his hand, has had an impulse, sudden and intense, to draw it across his throat; or, being on some high place, has been seized with the desire to hurl himself downward? This shows how near indeed the healthy mind ever hovers on the borderlands of insanity. Man stands so close to the portals of insanity that he can look through the gateway, when he takes an introspective view of his psychical being, and

can see the phantoms and mental ghosts of his insane personality. We have every reason to believe that, among civilized races, there is a vast amount of latent insanity. Taking the tables of our insane asylums, we find a thousand and one causes given as the exciting factors in the mental overthrow. Love, religion, anger, disappointment, etc., down through the long list of psychic and æsthetic emotions, until it seems as though even a breath of wind would be sufficient to destroy the mental equipoise. Among savage and uncivilized races insanity is of infrequent occurrence. Only when a race begins to elevate itself and take on a higher view of morality, when new rules and new laws, new customs and innovations, tending to place individuals in a state of comparison, arise, does insanity make its appearance. The untutored savage, living in a state of communism, is untroubled by the jealousies and heart-burnings of his civilized congener. He lives in the to-day and allows the to-morrow to care for itself. Devoid of ambition, a mere animal, sensual and indolent, he cares only for the gratification of his physical desires. The mental attributes of a civilized being are, in him, wanting.

Psychos is the result of evolutionary development, and the chief reason why insanity is not as prevalent in the savage as in the civilized man is because the brain of the savage lacks development. I do not wish to convey the idea that insanity is purely psychical in its nature. Insanity is the result of a material change in the structure of the brain produced by morbid action. The manifestations of insanity are merely the symptoms of a disease that involves the brain. The savage has less development of psychical function, consequently he is less liable to mental lesion. I mean by psychical function that portion of the brain in which psychos has its origin. Alienists consider the habits of men as being the factor in the production of insanity. Habits and heredity are undoubted factors in the production of diseased minds, and, in fact, are the chief agents. You cannot, however, expect to find a disordered function where that function is absent. Savages have paresis, apoplexy, and imbecility, seldom or never insanity. The reason is patent,—they lack the psychic function, that peculiar element, whatever it may be, which raises civilized man so high above them. That this element can be developed in savages I do not for one instant deny. The ploughshare of evolutionary civilization will bring it to the surface sooner or later, and when it does insanity follows. I have only to point

to the American negro to prove the truth of my proposition; even he is partially exempt, simply because his civilization is of such recent date that his brain has not yet acquired its full quota of the psychic element. I will venture to assert, so true is the fact that insanity is the product of civilization, that, if it were not for the combating influences of social laws, assisted not a little by scientific medical aid, all North America could not contain the vast and enormous army that would constitute the civilized world's array of lunatics. There seems to be in the minds of men an instinctive awe of anything that appertains to the insane. In olden times a disordered mind was considered of divine or diabolic origin as it evinced good or evil tendencies. This belief lasted even until the present century. Many old women who were the victims of senile dementia and kindred ills were accused of witchcraft and intercourse with the devil, here in the United States, not a century ago. Witches were executed in England and men burned at the stake in Spain, not two hundred years ago, for the crime of demoniacal possession. Even in this enlightened age, men are accustomed to consider insanity rather from its psychical stand-point than from its physical aspect. They do not take into consideration the fact that insanity is due to a physical lesion, and that its vagaries are but the symptoms of brain disease or brain deformity. The inhabitants of the borderlands are invested with a certain shadowy mystery which separates them from the rest of mankind, and which makes them appear to us as denizens of another psychical world than ours. In the Middle Ages, cranks, whose eccentricities took a religious turn, were considered holy. St. Simon Stylites was a very pronounced crank, and a very holy man also, because he chose to live the greater portion of his life perched on a pillar seventy feet high. St. Anthony was another holy crank who never, in all his life, washed his feet. Poor Joan of Arc was burned at the stake because she was "possessed of a false and lying devil." She has been recently canonized by the same church that burned her, and thus, in a measure, had justice done her. I do not think, however, that this is any recompense for the terrible agony inflicted on this unfortunate victim of hystero-epilepsy.

Says Maudsley in "Responsibility in Mental Disease," "Some of the prophets of the Old Testament presented symptoms which can hardly be interpreted as other than the effects of madness; certainly, if they were not mad, they imitated very closely

some of its most striking features." Jeremiah takes a long journey to the river Euphrates and hides a linen girdle in a hole of a rock. He then returns home, and in a few days makes the same journey, and finds the girdle rotten and good for nothing. Ezekiel digs a hole in the wall of his house, and through it removes his household goods, instead of through the door. Hosea marries a prostitute because, he said, he had been commanded by God so to do. Isaiah stripped himself naked and paraded up and down in sight of all the people. Some of the greatest changes in the world's history have been effected by dwellers in the borderlands. Mahomet was an epileptic, and his first vision was the result of an epileptic convulsion or seizure. The character of his visions was exactly like that of those visions which an epileptic sees and describes at the present time. Mahomet believed in his visions, and, what is more, got more than half the world to believe in them also. Gautama was a dweller in the borderlands, yet his followers now number five hundred millions. The novel mode in which an insane man regards things may be an inspiration which reflection could never attain, and it sometimes happens that opinions which seem to the world to be the ravings of a madman have turned out to be true. The insane man has the world against him, and though he may pose for a short time as a reformer, sooner or later lands in the asylum. It sometimes happens that the crank will succeed in getting converts. A notable instance is Schweinfurth, or "the Christ," as he calls himself. I am firmly convinced that this man believes in his delusions. One thing is certain, and that is, his disciples believe in him implicitly. This man is dangerous to society, inasmuch as he has caused the separation of several wives from their husbands; the wives abandoning their husbands to follow him to "heaven," as he calls his farm-house. The crank is, generally, a harmless individual, and is not antisocial unless his delusions take the form of homicidal impulse, pyromania, kleptomania, etc. Homicidal impulse is the most dangerous to society of the many mental vagaries and derangements which afflict the dwellers in the borderlands. Its invasion is sudden and its impulse is, generally, overpowering. A man may be walking the streets presumably in perfect health, and yet have, all the while, a voice whispering in his ear "kill, kill." His insane desire at length reaches its acme, and he throws aside every mental restraint and kills the first individual he may chance to meet. Again, he may desire to

kill some particular individual, and will carefully and systematically arrange his plans for the successful enactment of the homicide. The murderers of Garfield and Harrison probably belong to this latter class, though in the case of Prendergast, the slayer of Mayor Harrison, this opinion may be erroneous. There is something about his photograph that leads me to believe that he is a moral imbecile rather than an intellectual dyscrasiac. A clerk in a solicitor's office, at Alton, Hampshire, England, one afternoon took a walk outside the town, when he met some children. He persuaded one of these, a girl of nine, to go with him in a neighboring garden. A short while after, he was seen walking quietly home; he was seen to wash himself in the river and then go back to his office. The little girl did not return home, and, search having been instituted, her dismembered body was found strewn about the garden. The clerk was arrested, and in his diary was found this entry recently made, "Killed a little girl; it was fine and hot." This man was either a sadistic sexual pervert, or a victim of homicidal impulse. Maudsley gives this instance as an example of the latter, while Kraft-Ebing gives it as an example of the former.¹ There is a great difference between these two mental derangements. The victim of homicidal impulse kills without any ulterior object, while the sadist kills in order to gratify his unnatural and perverted sexual appetite. The victim of homicidal impulse is, to all outward appearances, perfectly sane otherwise. His impulse frequently leaves him for years and then returns with overpowering force. Epileptics who have just passed through violent convulsions will frequently attack bystanders with great fury. Some alienists declare that homicidal mania is frequently only a masked epilepsy. All epileptics should be carefully watched; they may become dangerous to society at any moment. Numerous instances are recorded of murder committed by sufferers from petit mal, a mild form of epilepsy. I once saw a negro walk up to a white man, who was a stranger and unknown by him, and fell him to the earth by striking him with a club. The negro was arrested, and the next day swore that he was entirely unconscious of having struck any one. It was proven on his trial that he was subject to mild epileptic attacks.

I believe that all suicides are due to mental aberration. It

¹ Maudsley, *Responsibility in Mental Disease*, p. 162; and Kraft-Ebing, *Psychopathia Sexualis*, p. 63.

may be the result of a momentary and sudden loss of mental equipoise, or the final and fatal ending of a premeditated desire carried through days, weeks, months, and even years. We see a man blessed with everything that makes life enjoyable. Genial, gay, with the ready smile and kindly word for every one, suddenly, in a moment, pass forever out into the unknown, self-killed, a victim of his own creation. We stand amazed! Why did he do it? We can find nothing in his past or present condition to warrant such an action. He was the victim of momentary aberration, or, perhaps, deep in his mind, buried and hidden even from himself, the desire for self-slaughter, when a "physical pain, an unexpected impression, a moral affection, an indiscreet proposition"¹ unearthed this desire, and he at once committed the deed. There are epidemics of suicide. Let the papers chronicle some peculiar method of suicide selected by some unfortunate, and others will immediately follow his example. Unconscious cerebration has also hurled many souls into eternity. I was called to see a gentleman who had attempted suicide by slashing the radial artery at the wrist. I found him holding a compress on the severed vessel and greatly alarmed. "He swore to me that he was totally unconscious how he had come to do the deed, and did not know that he had cut himself till he felt the pain of the wound."² I think that effemination and viraginity are due rather to abnormalities and deformities existing in the brains of their unfortunate victims than to mental disease. Mild forms of these types of degeneration are very abundant. The effeminate, cigarette-smoking, soda-drinking young man, and the loud, horsy, masculine young woman are seen everywhere. Effemination and viraginity are the results of the weakening effects of luxury and consequent debauchery. Nations have felt the dire force of effemination and have sunk beneath it. The Grecian, the Roman, and the Egyptian races are examples. The satirists of the Golden Age of the Latin people dipped their pens in gall and bitter wormwood and berated the effeminate nobility time and again. One advised the Roman ladies to look for men among the gladiators and the peasants.³ Anacreon's poems are full of allusions to effemination and the delights of psychic hermaphroditism. In the time of Louis XVI, of France, the royal palaces were filled to

¹ Wynter, *Borderlands of Insanity*.

² The writer, *Suicide*, *American Practitioner and News*, p. 293, 1890.

³ The writer, *Effemination and Viraginity*, *New York Medical Record*, p. 359, September, 1893.

overflowing with effeminants, who vied with the ladies in the splendor of their robes and the eccentricities of their conduct. The case of Alice Mitchell, who killed Miss Johnson in Memphis not long ago, was one of pronounced viraginity. Fortunately for the good of the community there are few viragints. The careful mother punishes the tom-boy girl for her hoidenish habits, and thus, early in life, restrains her unnatural masculine tendencies and turns her thoughts towards feminine pursuit and desires. The unfortunate effeminant, however, is encouraged in his feminine tastes and habits by his unwise mother, who likes her boy to sit beside her to sew or knit, as the case may be. She discusses matters of the toilet with him, and, in fact, treats him as she would a daughter. In the end his psychic hermaphroditism becomes complete, and one more unfortunate goes out into the world to swell the ranks of crankdom. Kleptomaniacs are greatly to be pitied, for they are generally women in whom the moral sense is very much developed. The kleptomaniacs will steal any and everything. They are like magpies in this respect. An acquaintance of mine, a most estimable lady, a devout Christian, and a most exemplary wife and mother, is the most incorrigible thief I ever saw. She has often picked my pockets while I was engaged about her sick-bed. The merchants of the town where she lives know her infirmity, watch her while she is in their shops, and respectfully and kindly relieve her of her pilferings when she starts to leave. She expresses great sorrow for her unfortunate insane impulse, and has often begged her husband to have her placed in an asylum. This he refuses to do, as she is perfectly sane otherwise. The husband was called away for several weeks, and on his return took me to his house and showed me her room. In the room were the objects stolen during his absence. It was the most miscellaneous collection of valuables and trash I ever saw. She had gathered together everything from a darning-needle to a tombstone, a small specimen of the latter forming a part of this heterogeneous collection. The form of partial insanity is much more frequent than people suppose, and the antecedents of shop-lifters and the like should be carefully examined before a judgment on their criminality is passed. "Eccentricity is certainly not always insanity, but there can be no question that it is often the outcome of insane temperament, and may approach very near to or actually pass into insanity."¹ Alienists rely on the

¹ Maudsley, Responsibility in Mental Disease, p. 55.

eccentric and peculiar changes which take place in the characters of their patients, who either present themselves or are brought to them for treatment, to establish their diagnosis. If a modest and truthful man suddenly becomes a braggart and a liar; or, if a humane man becomes cruel, or a neat man slovenly, there is reason to suspect brain trouble. The intellect may appear intact, so also the reasoning powers, but these eccentricities indicate a deviation which may lead to mental destruction. The last faculty in the mind of man to develop is the moral faculty. This faculty is the one first lost by diseased brains. If a man suddenly becomes dissolute and licentious, who, heretofore, has led a virtuous, moral life, if he be examined, in nine cases in ten, his brain will be found to be diseased. The little cloud, which at first is no larger than a man's hand, grows ever larger and larger, and in the end overspreads the entire mental sky.

Bathing, Swimming, and Diving as Causes of Aural Disease.¹

BY LAURENCE TURNBULL, M.D.,

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BEFORE entering into an account of the manner in which the ears of bathers are affected, it will be of interest to consider the construction of the ear in animals living a portion of the time submerged in water. A large number of marine quadrupeds may be included in this class, such as the crocodile, seal, hippopotamus, and the like. These animals can remain under water a long time before coming to the surface for the purpose of breathing, and it is found that the construction of their ears is such that no damage occurs to the organ from frequent excursions under the water, which is colder than the surrounding atmosphere, and would be irritating to delicate structures.

Some of the lower orders of marine life living exclusively in the water have no special auditory nerve, but receive sound impressions by means of shock imparted to the body.

The tympanic membrane and other parts necessary to sound transmission in mammalia are said to be absent in snakes and

¹ From the Medical and Surgical Reporter.

many saurians, though lizards and frogs have an exposed drum-head. Moles are said to have a closed external auditory meatus, which excludes earth in burrowing; and the camel, when exposed to the sand-laden simoom of the desert, has the ability to contract the nostrils at will.

Swimming and diving in cold water is a frequent cause of disease of the external auditory canal and external surface of the membrana tympani, as also of the middle ear, though bathing in river or sea-water is, when wisely and properly regulated, both healthful and pleasant. The evils attending bathing and swimming in cold water are the entrance of this cold fluid, not only into the external meatus, but as far as the membrana tympani, causing inflammation of the lower portion of the auditory canal, and of the anterior surface of the tympanic membrane. A still greater evil is from sudden deglutition,—*i.e.*, making the effort to swallow during diving or swimming, by which—the mouth, nose, and pharynx being filled with cold water, and the mouths of the Eustachian tubes open—a portion of water passes into the middle ear. This result rarely occurs in expert swimmers and divers, but is most common in beginners, who from cold or the shock of the contact with the water suddenly breathe or swallow in a sobbing manner. We have, however, known it to occur in old and experienced swimmers while plunging head foremost, termed a “header,” owing to the intense coldness of the water, the act of deglutition being involuntary. Bathers in the surf are liable when off their guard to be struck by the waves upon the ear with much violence, especially in boisterous weather at full tide. Cold salt-water may thus enter the external auditory canal with sufficient momentum to rupture the drum-head, especially in persons having a large, freely-open canal. Swimming or floating upon the back, especially the latter, when the ears are submerged, or diving and swimming beneath the surface, often exposes the ears very much to the entrance of the water.

The lovers of sea-bathing will learn with much interest the result of a series of observations on the temperature of the sea, which were completed some time since by the Scottish Meteorological Society. The observations were made every day during a period of four years and nine months, and the result was to confirm the impression that the changes of atmospheric temperature influence the sea but slowly. The variations in the warmth of the sea-water occur within a range one-third less than that of the air;

and the mean temperature of the sea is found to be warmer than that of the atmosphere in seven months out of the twelve. The summer warmth penetrates the sea very gradually, and is more gradually given off. January is the coldest month, but the sea-water is coldest in March. July is the hottest month, but the sea-water attains its maximum warmth towards the end of August. From that time the sea becomes warmer than the air, and cools so much slower than the weather that in November the average warmth of the water is six degrees, and in December seven degrees higher than that of the atmosphere. The balance is reached at the end of March, and then for the next five months the air is warmer than the water.

These figures, which result from careful observations made at Peterhead, justify the custom of extending sea-bathing late into the autumn. Sea-bathing should, in fact, begin late, and may safely end late. It is more dangerous in the warm days of early summer than in the chilly days even of the late autumn. The sea is as warm at the end of October as it is in the second week of June, and the period between these two dates is the healthy bathing season for those who are strong enough to begin early and leave off late.

If the water is not removed by placing the head to one side, and drawing the external ear forcibly outward, shaking the head at the same time and opening the mouth, also striking the external ear with the palm of the hand, it is apt to cause inflammation as the water decomposes, followed by perforation of the *membrana tympani*; or, the inflammation with the formation of pus, if neglected, may pass inward to the middle ear, cochlea, and labyrinth, and implicating the brain, may terminate in death.

It is a well-recognized maxim among those who devote special attention to diseases of the ear that no cold fluid should be allowed to enter even the external auditory canal; still, this important fact is not sufficiently recognized by the profession at large. The entrance of warm water into the ear is less objectionable, but even this is not quite free from danger, and has its disadvantages; and the water should in all cases contain a few grains of saline ingredient, like borax, soda, or common salt, a teaspoonful to the pint, when employed in washing out the ear. The symptoms of water in the middle ear are, in the first stage, an uncomfortable sensation followed by earache or pain, which after a time, if neglected, becomes agonizing, and is accompanied

with great tenderness behind the auricle. In proof that water in the ear is injurious and causes deafness, we might cite a number of instances. It is a well-known fact that dogs which are *thrown* into the water become deaf.

Many cases of this form of disease in its chronic stage come under treatment during all seasons, but acute cases from swimming and diving occur during the spring and summer months, chiefly in boys from 8 to 16 years of age; a much smaller number occurring in the fall and winter. If the acute form be promptly treated, entire recovery takes place; but should the case not be seen until after the chill, it is always followed by a discharge of shorter or longer duration.

The following is a summary of the aural diseases and complications of existing diseases for which patients applied for treatment:¹

Acute purulent otitis media; chronic purulent otitis media (from repeated exposure in bathing); acute catarrhal otitis media; subacute catarrhal otitis media; acute exacerbation of existing chronic purulent otitis media; otitis externa diffusa; otitis externa circumscripta; otitis externa exudativa; myringitis (either independently or in connection with inflammation of the external auditory canal); impaction of cerumen; otalgia due to exposure, etc.; aggravation of symptoms arising from chronic catarrhal inflammation by abuse of sea-bathing (bathing frequently and remaining in the water too long).

In cases not recognized, the symptoms of violent headache, furious delirium, and coma give the physician the impression that disease of the brain is present, and the cases thus improperly treated sometimes terminate in death. The morbid condition in the first stage consists in acute inflammation of the extremely delicate mucous membrane lining the middle ear. The inflammation is followed by effusion of fluid, and after twenty-four hours by the formation of pus. It is in every instance attended by fever, with swelling and inflammation of the naso-pharyngeal space, and great pain. If this fluid or pus be removed by incision into the membrana tympani, followed by the use of the air-douche and injections of hot antiseptic wash, the patient recovers and the ear is saved. The patient is apt to remain deaf for several weeks, and the use of Politzer's air-douche is necessary to keep the Eustachian tube open; the local application of tincture of iodine

¹ Sexton, The Ear and its Diseases.

brushed over the mastoid facilitates the removal of the inflammatory thickening. To diminish the discharge of pus, should it continue, we may employ a powder of boric acid, blown into the meatus before it is washed out, and reapplied twice a day until the discharge shall have ceased and the perforation becomes closed.

In Australia and India, where they have a very hot climate and most of the towns are on the sea-coast, the people bathe very frequently, some even three times daily, from June to October. During these months it has been noticed (Dr. Kenny) that the number of patients suffering from ear-troubles has been considerably augmented. They bathe in large enclosures for fear of the sharks, and these baths have a depth of water from twelve to sixteen feet. At these great depths the bathers are constantly diving, and added to the irritation of saline water in the auditory meatus there is also the great increase of pressure to which the membrana tympani is subjected.

Dr. Macnaughton Jones has noticed the occurrence of exostosis within the meatus to persons very fond of sea-bathing. The ears, when tender or diseased, in ladies should be protected in bathing by an oil-silk cap, while gentlemen should place a piece of wool in the ear, or some form of protection which can be removed as soon as the bathing is over.

Russian and Turkish Baths.—Acute inflammation of the middle ear, etc., is liable sometimes to occur after the use of these baths, which render the patient extremely susceptible to cold and consequent catarrh of the upper air-passages.

Sexton reports four cases of aural disease resulting from long-continued indulgence in the Turkish bath. Two of these patients had chronic purulent otitis media, and one chronic catarrh of the middle ear, while one patient was suffering from acute inflammation of the auditory canal.

Six cases of acute purulent inflammation of the middle ear, resulting from the effects of getting water in the ears or from the susceptibility induced by baths of various kinds, were recorded: A shower bath in one case; hot-water baths in two cases; hydrant water falling in the ear in one case; exposure after ordinary bath in one case; bathing when overheated in one case.

One patient, a male, 40 years of age, who was suffering from chronic catarrh of the middle ear, attributed a marked increase of tinnitus aurium to taking a cold bath.

We have explained the injury which results from the intro-

duction of water into the auditory canal, also the serious disturbance produced by the same when passing into the Eustachian tube by very sudden efforts at swallowing. Now the same results will follow the improper use of what is known as the nasal douche, or in snuffing up cold water or solutions of medicinal substances. The first great point is to remember that the fluids should not be cold; the second is that the head should be kept level and not thrown very far back; third, individuals using this method of cleansing the throat and back of the nose should not expose themselves to the open air for some time after using either of these methods. It is much better to use the steam or spray form of apparatus as less risk to the ears, and the result in a medical view will be as good, if not better, as cleansing agents.

The same results will occur from the post-nasal syringe when improperly employed.

The present fashion in young boys and even men in cutting the hair close to the scalp, both in summer and winter, is a cause of disease of the ear. It is a well-recognized fact that we hear with the skin of the scalp and the bones of the head, and irritation by dampening the skin impairs the hearing, and when cold water is applied too freely it will produce coryza and earache. Again, young girls saturate their hair in bathing and then allow the air to dry it. Bathing caps should be always used under such circumstances. The hair is a great protection from cold, and during the winter should be used to protect the scalp and throat. The new form of clipper by which the hair is cropped very close is a cause of earache, likely to follow inflammation of the middle ear, especially if the person is afterwards placed in a car, or carriage, or cab, and the wind allowed full play on the part.


Music as a Healing Power.

The idea that music possesses an actual healing power is about to be tested in London. The Guild of St. Cecilia is about to build or hire a large hall, in which musicians, especially trained to sing and play the very soft music which alone should be administered to those whose nerves are weakened by illness, shall perform by day and night. Telephones will connect this composite and continuous music-room with certain wards of London hospitals. Records and data of conditions and effects are to be kept, and conclusions arrived at.—*Medical Record*.

The Effect upon the Nursling of the Mother's Diet.¹

BY HAROLD H. KYNETT, A.M., M.D.,

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HE feeding of infants on artificial foods is a growing evil for which, although they inveigh against it, physicians are in a large degree responsible. Efforts are made to explain the evil away on such grounds as the desire of the mother to avoid the inconveniences of her natural duties, or of changed conditions of life causing inability to furnish food in sufficient quantity, if at all, or of deficient quality of the mother's milk, or other conditions, for all of which the mother is responsible. These conditions do exist in a greater or less degree, but aside from actual and acute disease, the maternal conditions may be tersely summed up in the statement that the mother is unwilling to make the sacrifices necessary if she performs her duty to her child. The responsibility of physicians lies in weakly conceding to the patient's desires, in place of strenuously insisting upon the mother's every effort to carry out the provisions of nature.

In these days of milk-foods, prepared foods, substitutes for mother's milk, etc., etc., mothers do not understand that the nature which provides organs for bearing children also provides organs for nursing children, and intends that these organs should be for use rather than ornament. She does not realize that the products of modern science at best are but poor substitutes for the products of nature. If the physician would insist upon the mother performing her natural functions despite her assertions that she "cannot nurse the child," "never could nurse her children," "didn't have milk enough," "nipples too small or too tender," or "milk left her in two or three months," etc.,—if the physician should insist, and the mother persist, both would be surprised to find that long-abused nature would still be willing to do her proper work.

Patient endurance of discomfort, persistent effort and proper food will eventually demonstrate the ability to nurse their infants, in nine out of every ten mothers who assert the necessity, in their

¹ From the Medical and Surgical Reporter.

individual cases, for "bringing up the baby on the bottle." And that, too, without scouring *materia medica* for imaginary galactagogues, and likewise to the very great benefit of both mother and infant.

During his six years' service at the Preston Retreat, Dr. Joseph Price gave the medical profession, through that institution, some most valuable object lessons in obstetrical science.

There was no secret in the methods used to make that institution the model maternity of the world so far as professional results are concerned. His guiding principles were *care, cleanliness, and common sense*. The strictest supervision of every detail, scrupulous practical cleanness, and not so much of theoretical cleanliness, and simplicity in all matters, enabled him to complete his service with a mortality record never equalled in private or public maternity work.

It was a law with him "to allow the mother to bear her own children," and it was equally the rule to require each mother to nurse her own infant during her stay in the institution. So very rare were exceptions to this rule necessary that a nursing-bottle could not be found in the entire institution. The patients in the Retreat were in no respect an exceptional class, save in the fact that so large a proportion of them were ill-nourished and impoverished in physical health when they entered the hospital,—conditions which would entitle them to claim inability to nurse infants. Another fact of interest was noted,—namely, that many mothers who, while in the house, furnished abundant food-supply and left the institution with thriving babies, would, after leaving, put the baby on the bottle as a matter of personal convenience, and in a surprising proportion of such cases would lose the babies within a few months.

The moral to be drawn is that almost every woman who can bear a child can nourish it. Attention to the body functions, generous supply of simple, nourishing food, and early and persistent efforts to establish and develop the mammary secretions were the only methods used to secure these results.

In general practice the physician is too apt to give up the contest too early, or to rely upon some form of stimulant to the glands, which eventually proves delusive if not injurious. It is a common practice to administer alcoholic beverages in the form either of ale, beer, or porter to nursing women for the purpose of increasing the milk-supply. Beyond question these articles are

capable of doing much injury to both mother and child, and their indiscriminate employment for such purposes should be interdicted.

Dr. J. W. Byers, in the *Annals of Gynæcology and Pædiatry*, has made some very pertinent remarks on this subject. He says, "The truth is, in this practice of using alcoholic drinks, the profession has followed the customs and whims of the laity rather than the usual process of instructing and leading the latter. That there are conditions and circumstances in which the administration of malt liquors is of decided benefit to both mother and child, no one will undertake to gainsay. But that they are indicated in every instance of deficient lacteal secretion, or that the exigencies of the case ever render necessary their use to the extent as is commonly employed, none can maintain or justify. The promiscuous and general practice of using malt liquors by nursing women is irrational, does a vast amount of harm, and often causes disease in the suckling. We know that the mammary gland, for all practical purposes, may be considered as an organ possessing functions of a twofold or mixed character,—namely, secretion and excretion. Under normal physiological conditions the first of these processes is in almost exclusive operation, though, as shown by experiences, the slightest alteration in the condition of the organism, whether of an emotional, medical, or dietetic character, may so change this secretion that it becomes to all purposes and effects an excretion, and an innocuous, healthy pabulum for the child is converted into a deleterious or poisonous substance.

"Experience is very general in showing that the milk fats and albumens, in increased proportions, have a decidedly injurious effect upon the digestion of the infant when taken into the stomach in excessive quantities. From a number of experiments conducted by Zaleski he found these substances in the milk in excessive proportions whenever the mother had partaken of alcohol. In each case where the mother was tested with malt liquors, the fat and albumen appeared and caused more or less disorder and distress of the digestive apparatus of the suckling. These deleterious influences, however, were not the worst. Analysis of the milk further revealed the fact that it actually contained alcohol and the micro-organisms peculiar to malt liquors; that the liquor drunk by the mother actually passed out *in toto* through the mammary gland and on into the child's stomach, and there produced

all the phenomena incident to digestive disorders and febrile disturbances. These facts point to the belief, and support the attitude, that the mammary gland under certain conditions exercises the function of an excretory organ, and that, under some circumstances, it becomes nothing more than a filter through which the food and drink taken by the mother passes directly into the stomach of the child. This being true, we are in a position to understand and appreciate the importance of the relation of the diet of the mother and the well-being of the child. When we prescribe alcohol for the mother, we at the same time do so for the child.

“The diet of the mother is a stage in the milk-producing process, and the milk she produces is, in every instance, the result, and only the result, of the food of which she partakes. If it be improper, unsuitable, or contaminated, the milk will express this in a proper ratio. In the case that beer or ale is administered it will find this outlet, and while it does not evidence deleterious influences to the extent of broducing the worst results in the form of either colic, indigestion, or diarrhœa, in every instance its effects are present, and these are always among the possible results of its use. The effects of fat and albumen, when present in breast milk in excessive proportions, in producing evil effects on the child are too well recognized to dwell upon. That the more severe of stomach disorders, gastro-intestinal catarrh, enteritis, or even cholera infantum, are due to these substances, as a result of the abuse of malt liquors in the mother, is certain, though such is not generally admitted or recognized.

“Take care not to advise a woman, whose milk-supply is reasonably full, to resort to beer or other liquors in order to increase it. Always impress upon them the increased risk to the child incurred by using them.”

Old Age and the Death-Rate.

Only 906 persons in a million die from senility, while 1200 succumb to gout, 18,400 to measles, 27,000 to apoplexy, 7000 to erysipelas, 7500 to consumption, 48,000 to scarlet fever, 25,000 to whooping-cough, 30,000 to typhoid and typhus, and 7000 to rheumatism. The averages vary according to locality, but these are deemed pretty accurate as regards the population of the globe as a whole.—*Medical Age*.

Perfect Fatherhood.¹

BY PROFESSOR J. H. COOK,
Columbus, Kan.

AS to fatherhood, motherhood, and parentage, I seek only for facts ; for truth, which is only to be obtained by observation and comparison. I read much about perfect motherhood from its champions, but little or nothing in behalf of a perfect fatherhood. I have been waiting several years for some one better qualified than I am to bring up the rear part of parentage, perfect fatherhood, to the front, side by side with perfect motherhood. As to the perfect that is but an ideal to hold up ; to work for and aspire after but never (?) attainable.

I have been a student of nature and man sixty years. I have suffered intensely all my life from excesses and deficiencies inherited from both parents ; some from father, some from mother. This is why I have been intensely interested in heredity ; and have lectured, talked, and written so much on parentage, the most important subject for investigation, and paramount to all other factors of a perfect manhood. Too much cannot be written on foundation principles or a perfect motherhood, but too little is written and said as to its equally (?) important complement, perfect fatherhood, as a co-operative factor of a perfect parentage. The more you improve man the more you improve woman, and *vice versa*. It seems to me, from what I have learned or tried to learn on this subject, that the eternal equation of an ideal perfect man or woman is perfect manhood,—perfect womanhood,—perfect parentage, and therefore perfect humanity.

When I read articles from noble, gifted women in behalf of perfect motherhood, and assuming woman's superiority to man or his inferiority to her, so great that he is impliedly fast dwindling down to zero, I am compelled to believe they are either prejudiced or have not used their powers of observation and comparison so essential to scientific truth and justice.

Nature in her evolution of man, from the lowest types to the best and highest types that we now see, has by differentiation

¹ From the Health Monthly.

and specialization brought up and forward together, as if of equal importance, both male and female forms, functions and modifications. Among the very lowest types of animal forms are hermaphrodites, as in the fruits and flowers, but by slow and long modifications and transitions developed into the highest or unisexual forms and functions, the male sexual organs in one body and the female in another. Both sexes have the rudiments or nay-marks of evolution left, of the organs as they were close together in the antecedent conclusion of self-impregnation.

I suppose (who knows? Can any one disprove it?) the human fetus in its progress to completion passes through most, if not all, of the forms and features of lower animals to the unisexual.

I have said and written for many years that both sexes are equal in value as co-workers and producers of a progressive and improved parentage, as they are or should be in every other department of life and action. To ignore or disparage the male factors of improved parentage is as unjust and illogical as to say that the stamens of a flower are not as essential as the pistils, or the centrifugal force is not as essential to keep the earth in its orbit as the centripetal. I here repeat that in general the male and female principles, forms and functions from atoms to worlds, are equal throughout the great all.

Now, briefly to facts,—to “the law and the testimony.” It is often said by the advocates of a perfect motherhood that great or intellectual men are dependent upon a mother of superior intellect. It is a general truth or fact, or else my senses deceive me, that male children inherit more from the mother, and the daughters more from the father: a truth confirmed by the greater attraction generally of fathers for daughters, and of mothers for sons. But there are many exceptions to the general fact. Mrs. E. C. Stanton, Lucy Stone Blackwell (dead), Anthony, Slenker, Gardner, and many other noted female reformers, inherited their intellect largely more or less from their fathers. H. B. Stowe is very much in mental power and in head and face like her father, L. K. Beecher. H. W. Beecher’s daughter has a strikingly marked resemblance to her father; the world is so full of these facts that “he who runs may read,” if not mentally stupid.

Are there no facts to prove that men do not always get their intellect, great or small, from their mothers? I inherited my intellect or front, active brain, mostly from my father. That

great man, Fred Douglas, inherited his intellectual power from his smart white father, his mother was a colored slave. When in Washington I took especial notice of the half-breeds, children of white fathers and Indian mothers. The sons and daughters both were mentally superior to their stupid mothers, and the daughters were superior in this respect to the sons, according to the afore-said general law. In most cases children inherit much from both parents in different respects and in different degrees between the extremes. If the temperaments are right or adapted, and there is attraction or love between a father and mother, their children will generally be superior to either or both parents by the law of evolution that generally evolves the superior from the inferior, the complex from the simple, etc.

How often have I, when telling a man or woman whom I was examining that he or she "took after father or mother," heard the question, "How can you tell? It is so."


As I am one of the oldest champions of woman's *equal* rights and opportunities, her freedom from *all* slaveries, her absolute sovereignty of "mind" and body, as if all men had in this sense been like me, she would have been set free and set up as man's equal and complement, I do not now want to be set aside, ignored or discharged, because woman is coming on and coming up to where by nature she belongs.

I care not from what sources or causes the race is improved and elevated, but I am ignorant and greatly mistaken if, on the whole, fatherhood is not as important and constant a factor now, as it has been (?) in the past, as is motherhood in the production of human stock. From atoms to worlds the two eternal male and female forces, or their analogues, are ever in indissoluble co-operation as equal factors in nature's evolution. If it can be proved that if the mother is "all right," perfect children can be born, no matter who or what the father may be, so be it. I must wait till it is proved by facts, not by sentiment or assumption. I can say but little here. I close by repeating that a perfect fatherhood is just as essential as a perfect motherhood, and one cannot be reached without the other. I only want the facts and the truth on this as on every other subject.

A Letter from Bagdad.¹

BY JOHN C. SUNDBERG.

HOW TO PROMOTE CHOLERA AND OTHER EPIDEMICS.

 HIS art can be studied to advantage here under tuition of the Turkish health authorities, who, during the prevalence of any epidemic, receive double pay, and therefore are on friendly terms with comma bacilli and other pathogenic bacteria. When cholera broke out in lower Mesopotamia last May, a military cordon was at once established across the country from the Persian frontier to the Euphrates, a hundred miles or so below Bagdad, and the steamship "Mejidieh," which was coming up with over a thousand passengers on board,—among them several hundred pious Jewish pilgrims returning from Ezra's tomb,—was turned back and kept in quarantine three months. The passengers who had money—it does not take much—slipped through the cordon and came to Bagdad; those who were destitute had to remain without food, except what charity provided, and without shelter, unless a few straw mats can be so termed. No attempt at sanitation was made at the quarantine station. Fortunately, cholera reached Bagdad August 24, or the poor travellers would have had to remain in quarantine until released by death from old age or other causes. Strange to say, not one of them took cholera or died, and the joy with which they learned that cholera was in Bagdad resounded from river to river in loud and shrill "lu-lu-lu-lu-lu" from a thousand throats. The cordon was now moved above Bagdad, and soldiers and comma bacilli have been playing dam (checkers) ever since, the whole moving steadily up stream towards Khurdistan.

When the disease first broke out here vigorous measures were at once instituted to stamp it out; at least the sale of watermelons was forbidden, and Mohammedans were granted permission to drink spirits. One morning some twenty coofas loaded with watermelons were boarded by soldiers, who began to pitch the melons in the river. Immediately more than a thousand men, boys,

¹ Read before the San Francisco County Medical Society by D. W. Montgomery, M.D.
From the Pacific Medical Journal.

and some women, stripped and swam out and gathered in "the forbidden fruit," and then went ashore and gorged themselves,—*a grand free board of health banquet*. My gardener, Solomon, an African, went out in a boat which he loaded full, and then lived on watermelons for several days; it did not seem to hurt him. But one day he forgot the precept of the Prophet (on whom be peace!) and drank what the Koran forbids, but some of its modern expounders now permitted. That evening he performed an African war dance for the edification of my little son, and then went home to dream sweet dreams. He awoke with a throat as parched as a rainless desert which the overflow of the rivers does not reach, went down to the river and drank deep of its much-defiled water; in two hours he was dead.

How many died here no one knows,—except Allah. The greatest number of fatal cases reported in one day was fifty-seven, and in one week 336; but this was wholly unreliable. Surreptitious burials in the cellars and elsewhere were common; and then the true facts as known were also suppressed by the authorities. Christians and Jews fled in fear, but the Mohammedans remained, "resigned to the will of God," which is really the essence of their religion.

As an old, green, slimy, filthy canal surrounding a fort above here is being filled, the accumulated filth of centuries is coming down the river. *To see it is enough to give one hydrophobia*. I have protested against this state of affairs to the health officer, but he says he can do nothing.

I have represented to the *Wali* (governor), whom I am proud to call my personal friend, and who, for his efficient administration of public affairs—or some other reason—has been recently decorated with the Grand Cordon *Osmanieh*,—I say, I have represented to him how Bagdad might have pure water by following the example of Calcutta, to wit: Establishing pumping works and filtering beds five or six miles above the city, and conducting the water in pipes to the houses; and my friend, the governor, bows, smiles, and says, "*Inshallah, Allahu Akbar*" (if God will, God is great). Now, if I were governor of Bagdad, I should place sufficient funds at the disposal of the health board, pay them well as long as they kept the city healthy and clean; *but hang them at once if an epidemic broke out*.

MODERN THERAPEUTICS.

I have been reading in the *Journal of the American Medical Association*, and in other American medical periodicals, that various animal extracts, such as "cardine," "cerebrine," etc., have been introduced by Dr. Hammond. No doubt the great American fakir has gotten the idea, without acknowledging it, from the Arabian fakirs or dervishes who prescribe children's hearts as a diet for saints suffering with imaginary heart-disease. One great saint here, whom, as well as whose wives, I number among my patients, and whom some day I am going to dose with tartar emetic and then refuse to cure him, unless he gives me his snuff-box, which must be worth some \$40,000. This saintly hog (or hoggish saint) is reputed to kidnap children and feed on their hearts. Sheep's testicles are eaten here for impotence, sterility, etc.; but a Greek doctor is now administering the regular "spermine," and reports wonderful cures.

The Arabs are great eaters, and, like the Esquimaux, they want their food to float in fat. An Arab of the desert will eat a sheep with rice, bread, and milk at one sitting; but, again, he can subsist on bread and dates only.

CLIMATOLOGY.

The following table represents the monthly mean temperature on the river for ten years: January, 53.8°, February, 56.8°, March, 63.1°, April, 71.5°, May, 82.2°, June, 89.8°, July, 94.1°, August, 92.7°, September, 88.8°, October, 79.8°, November, 66.3°, December, 56.3° F.; annual mean, 74.6°, highest in ten years, 118°, lowest, 31° F.; rainfall six or seven inches between November and April.

Last summer was exceptionally hot. From the middle of July till the middle of August it was seldom less than 115° F. in my office, the coolest place in the city during the day. Up town among the wool warehouses, where I had to go and disinfect wool, it went up to 130° F.; in the dispensary where I see the indigent sick it was 122° F. One night in July I thought the gates of hell had been left open. Blasts of invisible flame shot from all quarters, and the mercury went up to 115° F. at 2.30 A.M., as taken on board the British man-of-war here; in my office it was 104° F., but on my roof I think it might have been 115° F. The sky is usually cloudless in summer and the stars brighter, *nearer*

(apparently), and more numerous than anywhere on earth. Well can I understand old father Abraham's astonishment, when it was announced to him that his seed should be as numerous as the stars.

MORALS.

In my last I said there were no saloons or brothels here. I have since learned that some exist, but no one is willing to acknowledge he knows where. Sodomy is common and no concealment of it is attempted. This is among the Turks chiefly; but a wealthy German sodomite has a palatial residence here, and carries on in grand style. He is highly educated, entertains grandly, and is courted by European and Turkish society. He has called on me twice, but I have not returned the call. The other foreign consuls, however, are on very intimate terms with him. He is a great musician (really great), and he asked to be introduced to my wife, but I declined the honor. He is also a most wonderful linguist. Curiously enough, the expression of his face is that of an idiot.

The town Arab is somewhat degraded, but the morals of the desert are said to be ideally perfect. Fornication is there punished with death, so I have been told; but going down the river by steamer I saw signs that the Arabs along the river bank are being gradually demoralized.

I have beaten at least two hundred Arabs and two Turkish soldiers this summer for bathing before my windows absolutely naked, and defecating in my garden, and even on my door-steps. One of the Turkish soldiers whom I hammered last week went into the adjoining mosque, and from the chief mullah obtained a written declaration that I had assaulted him without cause. With this he went around and tried to get up a mob. I had captured his coat and wrote to the commander-in-chief of the army that it could be had on application. Result: Soldier arrested, but mob threatening me and throwing human excrement in through my windows. It was made a religious question, and the lives of the whole Christian population were in danger for a day or two, till the excitement subsided. My servants were told that I would be assassinated as soon as I should appear on the street. The governor has sent a guard for my house; but I go out alone as before.

A PILGRIMAGE.

On my way back from Bassorah last month I made a pilgrimage to the tomb of Solomon Pak (Mahomet's barber and a very saintly man), whom all good Mussulmans, but especially barbers and *surgeons*, venerate. At the same time I also inspected the ruins of Ctesiphon, the greatest arch in the world.

CURIOUS PRACTICES.

Like with most Asiatics, a saw here cuts when you draw it to you, and gimlets turn the opposite way to European gimlets. But in this there is common sense. Are not the flexor muscles stronger than the extensors, and pronators stronger than supinators? The most curious sight is men sawing bricks. Bricks are made square, about fourteen inches each side, and about two inches thick, and before being used for building purposes they are sawed in three pieces. This is certainly a good way to give people employment.

While on the subject of epidemics, I forgot to say that it is reported here that of the 200,000 pilgrims that went to Mecca this year 75,000 died of cholera. On one day there were probably slaughtered, *as sacrifice*, not less than 100,000 sheep. In Bagdad alone were slaughtered in one day at least 20,000 sheep.

CRIMES.

Murders, which are usually rare here, have this summer been common,—a regular epidemic. Robberies were common during the cholera epidemic.

There has been one suicide here in sixteen years, and he was a foreigner. This shows the Bagdadi is fond of life. Remember there are 200,000 inhabitants, of whom 50,000 are Jews, 5000 Christians (Chaldeans, Syrians, Armenians, Greeks, Nestorians, and (300) Roman Catholics,—also perhaps a dozen Protestants).

Temperature in my office now at 4 P.M., November 1, as I am writing, is 90° F. ; but nights are now cool and pleasant. We still sleep on the roof; but are the only ones in Bagdad doing so at this time of the year.

[In a private letter the doctor informs us that between January 1 and October 1 of this year, he will have to disinfect about 7,000,000 pounds, or somewhat over 20,000 bales, of wool. He

also says that "The language of this region is as different from classic Arabic as French is from Latin (the relation is about the same), and while I admire the latter I hate the former." "My boy speaks it well, and my wife speaks it better than I who know the classic Arabic." "The dialects of Syria, Egypt, Yemen, Medjd, and Hedjas are quite distinct." "Life here is anything but comfortable; ease there is, but not comfort." "Servants are quite expensive (twice as high *with board* as in India without), and dirty, lazy, and good-for-nothing at that." "I have two servants of the same name, 'Razkallah,' so I call one Razuk and the other *Rascal*." "This is a terrible place for gossip,—worst in the world."]

Coffee : Its Uses Medicinally and Otherwise.¹

BY WILLIAM K. GRAYSON, M.D.,

Florence, Texas.



ON examining the effects of coffee on the human economy. we find that if used judiciously that it acts as a bodily and mental stimulant of a most agreeable nature, followed by no injurious reaction; it promotes contentment of mind unequalled by any other article used as a beverage; it allays hunger and bodily weariness, and increases the incentive and capacity for work, both mentally and physically, and not only so, but enables those who use it to remain a longer time without sleep or food, and to endure fatigue and to preserve a certain cheerfulness of mind not imparted by any other beverage; it also produces more physical and muscular energy without physical injury. The mental exhilaration and physical activity from its use explains the fondness for it which has been shown by scientific men, scholars, and others devoted to thinking. It has indeed been called by some the intellectual beverage. The action of coffee is chiefly directed to nervous systems. It promotes a warming cordial impression to the stomach, quickly followed by a diffusible, agreeable nervous excitement, which extends itself to the cerebral functions, giving rise to increased vigor of imagination and intellect without any subsequent confusion or stupor, such as are characteristic of narcotics.

¹ From the Texas Sanitarian.

Coffee contains, to a great extent, the essential elements of nutrition far in importance and excess of its properties as an exhilarant, and is one of the most desirable narcotics for sustaining the system in certain prostrating diseases known to the medical profession.

Coffee as compared with the nutrition derived from the best of soups has with me decidedly the preference and advantage in many cases. I speak knowingly in this matter after an experience of over forty years' practice. I found in cases of typhus and typhoid fevers that coffee increased the elimination of urea, and so far purifies the blood without increasing the destructive metamorphosis of tissue, and that it also lessens coma and low delirium. Again, in the treatment of intermittent fever in our climate I have used it with the best results in cutting short an attack of intermittent fever, better in many cases than that of quinine. When judiciously administered it is one of the best remedies in such cases. I often prescribe the following formula :

Well roasted coffee four ounces in sixteen ounces of boiling water boiled down to half a pint. Two tablespoonfuls to be given hot every two hours, commencing six hours before the expected attack.

Keeping the patient well covered up in bed, this may seem simple treatment, but nevertheless it is very effective.

In the hysterical attacks peculiar to some females, of which the physician can form no diagnosis or cause for the peculiar and eccentric symptoms manifested, such as screaming, crying, staring in a sullen patient from whom he cannot get a coherent answer, I prescribe a cup of strong, well-made, black coffee, of which after she partakes she soon becomes quiet, lamb-like, meek, and lovable ; it causes a wonderful transformation, as though she had suddenly changed from nature to grace, all through the benign influences of this wonderful agent. In whooping-cough, stupor, or lethargy, and in spasmodic asthma its utility is well established. I have also found it useful in practice, as a remedy in croup, nephritis, diphtheria, and in poisoning from opium its use is well known as one of the very best medicines. Coffee carries a healing influence wherever used ; it is opposed to malaria, to all noxious vapors, and as a disinfectant and deodorizer it has but few equals ; in this respect it has a wonderful power ; by simply burning a chafing dish of coffee-grains through the sick-room the fetid odors and exhalations are immediately neutralized. After a hearty

meal a cup of good coffee will relieve that sense of oppression apt to be experienced, and enables the stomach to perform its office with comparative facility. It may be urged that an article of such powers and capacity for such energetic action must be an injurious article of diet if habitually made use of. Of course there are certain states and conditions of the human economy in which its use should be abstained from; in such cases, however, common sense should be our guide. Of course, it is not like the nigger's rabbit,—good for everything. After very closely watching its action for quite a number of years on myself and others, and having extensively used it for its remedial properties in practice, I have never found any corresponding nervous derangement after the effects have disappeared as seen in the use of narcotics and other stimulants, and I most positively deny that the use of coffee is injurious.

Garbage Disposal.¹

AMONG the most urgent of the needs or demands created by the concentration of people in modern cities is that of the disposal of the waste products which do not pass off in the sewers. The operations of households, hotels, and restaurants probably are the sources of the greater portion of the waste products which in their entirety constitute the garbage of cities, although nearly all street sweepings, dead animals, and the numberless varieties of discarded articles and objects contribute to swell the total amount to thousands of tons annually in a city of no great magnitude. The efficient and economical disposition of this nearly all organic mass of matter has come to constitute a problem whose satisfactory solution is very difficult and yet imperative to attain. Ashes and other inert matter, and even street sweepings to some extent, may be disposed of in a fairly satisfactory manner by being carried a reasonable distance to sea and dumped where it will not produce appreciable shoaling, or it may be used for filling, and thus made profitable by creating productive land.

It is an absolute necessity, however, that the organic waste products of a community be treated in an entirely different manner. If dumped at sea, a considerable portion of it at least will be dropped short of the legal limits and quickly find its way back to

¹ From the Engineering Record.

shore, as may happen in any case, to decay and pollute both water and atmosphere. Matter of such character is also utterly unfit to be employed for filling in any location whatever, and its use for such purposes ought everywhere to be prohibited by law. Piled in masses, decomposition, slow or rapid, but in the most pestilential form, invariably takes place, with offensive and polluting discharges of vapors to render the atmosphere dangerously unwholesome for a considerable distance, and frequently for a long period of time. It may, and usually does, require years to render such filling material a safe site for buildings of any description. Abundant experiences around New York City at the present time yield the most crucial evidence on these points. They involve grossly unsanitary conditions which ought not to be permitted to exist in or near any community.

Feasible modes of destroying or utilizing garbage must be devised, and the determination of such processes is at the same time probably the most important and the most difficult question before sanitary engineers. The burial of garbage is impracticable, and its chemical treatment, so far as available evidence indicates, at least equally so. The two methods of cremation or incineration and reducing or digesting have been extensively tried, and appear to promise feasibility and possibly economy. In Great Britain especially, the disposal of garbage by burning has been practised in many places for some years, and with apparent success. Indeed, it has been stated that even with its 80 or more per cent. of water, it is equivalent as fuel to one-tenth its weight of coal, and that it can be economically used in the production of electric lights and other power. It is possible that such results may have been produced in England under some specially favoring conditions, but there is no prospect of any such fortunate issue of the question in this country.

The disposition of ashes is a serious complication of the general problem. In spite of what seems to be a general opinion to the contrary, it would seem to be perfectly practicable, without any great difficulty, to collect garbage separately from by far the greater part of the ashes and to carry the latter either to sea or to other dumping grounds. The garbage (with possibly some small portion of ashes) may then be treated, either by incineration or by reduction. If the quantity is small, it is obvious that no process of reduction or digestion will prove feasible from a business point of view. Numerous cremating furnaces have already been estab-

lished, and while it is too soon to learn the ultimate outcome, there appears little doubt that the process of incineration is to be one of the most satisfactory methods of garbage disposal. Its one defect is of course that it is a process of "outgo" with no income.

The only other method of any material promise is that of reduction or digestion, which is a process of treatment yielding products of more or less commercial value. Various types of plants are used, but that employed under the contract just executed by the city of Boston seems to be as effective as any yet devised. In this process the garbage is subjected to the direct action of steam at perhaps forty pounds pressure for a period of about eight hours. During this portion of the operation grease or oil is rendered and is carried off through a properly-arranged pipe, and is made salable by subsequent refining. Vapors are conducted away by another pipe, and after condensation in water are discharged into a sewer. The solid matter left in the digester is then pressed and dried and sold as a fertilizer. Just how much commercial value these products will have remains to be seen, and the same observation can be applied to the cost of operation. It is, however, a very interesting and rational effort towards the solution of a most difficult sanitary problem, and no little importance attaches to the issue. There doubtless remains much to be learned in connection with the practical operation of both cremation and reduction of garbage, but they are thus far the methods which appear to exhibit at least the beginnings of success.

How to Live Long.¹



FROM the stand-point of a physician it is impossible to put up general rules for the conduct of one's life in order to insure longevity, each individual case will have to be treated according to its own peculiarities. If the physical and mental condition of all persons were the same, then the same rules would hold good in every case. But the inherited and acquired weaknesses and conditions of mind and body must more or less modify the physician's advice. That which produces the best health necessarily insures the

¹ From the Medical Review.

longest life, and in order to give advice for the attainment of good health it is necessary to individualize. While for one person a total abstinence from all stimulants may be the most conducive, to another a moderate stimulation may be imperative. As the surroundings change by advancing civilization, so will the individual's wants be influenced and modified by them. With this modification we most heartily endorse the views expressed by Dr. D. E. Nelson, in his article upon longevity, published in the *Journal of the American Medical Association*, of April 28, 1894,—

“He who lives extensively, who avoids all stimulants, takes light and agreeable exercise, indulges no exhausting passions, feeds his mind and heart with no exciting material, has no debilitating pleasures, ‘keeps his accounts with God and man daily squared up,’ is sure, if he has a good organism, to spin out his life, barring accidents, to the longest possible limit.

“The poet, William Cullen Bryant, when asked the secret of his health and vigor at upward of eighty, answers, ‘It is all summed up in one word, *moderation*.’ The ancients laid much stress on gastronomy, as many idioms in all languages attest. ‘Heaven sends the food, but the devil sends the cook’ is an old saw that is more forcible than elegant. How many a young man squanders on a holiday or an evening’s entertainment an amount of nervous energy which he will bitterly feel the want of when he is fifty. Even warm affections are prejudicial; they subject the owner to constant anxiety, and are as unnerving as the excitement produced by politics or gambling. Nothing is more exhausting than anxiety for a sick wife or child, or nursing a friend through a long sickness, unless you can truthfully say that you take no interest in the result. When a ‘fine old man’ was mentioned in Swift’s presence, he exclaimed angrily, ‘There’s no such thing; if his head or heart had been all right, they would have worn him out long ago.’

“Our fine enthusiasms, if they rise into intensity, are costly and lessen the number of moments we have to live. Some years ago a gentleman in England set about ascertaining the causes of the premature deaths of his acquaintances who had been cut off within twelve years. Of forty individuals, he found that twenty had died from excessive mental labor or excitement, and twelve of these were not intellectual laborers, but men of the world. Sydenham tells us that one of the severest fits of gout he ever suffered from arose from great mental labor undergone in composing his treatment on that disease.

“While all excess is injurious, it must not be inferred that hard brain-work apart from other causes tends to shorten life. Mental labor, apart from grief and fears, from forced or voluntary stinting of the body’s needed supply of exercise, food or sleep, and the mind’s supply of social intercourse, rather prolongs life than cuts it short. Even overwork of the brain is probably far less injurious than underwork. Nine-tenths of the students and professional men who are supposed to break down from intense toil wear themselves out, not by repletion of study, but by a vicious misapplication of their normal, physical, or intellectual forces.

“Lord Brougham lived 89 years. Lord Lyndhurst wore out at 91. Epimenides, the seventh of the wise men, is said to have lived to 184. Hippocrates reached 99; Pythagoras reached 80, and was murdered. Dr. Franklin was 84. Montgomery, the poet, lived to be 82. Sydney Smith lived to 76, and Sir Isaac Newton to 85. The Right Hon. William E. Gladstone, who retired from the Premiership of England only a short time ago, was, last December, 84 years old. Dr. Beard, of New York, in an able paper on the ‘Longevity of Brainworkers,’ has proved beyond even the shadow of a doubt that the world’s hardest workers, so far from being short-lived, show a very high average of life; a far higher average than the world’s drones, and those who had added nothing to its accumulated capital of happiness, knowledge, goodness, and truth. It is an established fact that not a few of the long-livers might materially lengthen their days by taking more exercise and sleep, and by economizing more carefully the expenditure of intellectual and moral energy.

“It is known by every scholar that mental application is one of the most effective means of relieving bodily pain, and that it is especially fitted to soothe the ruffled spirit, and to mitigate the asperity of corroding anxiety and care. Bacon, in his ‘History of Life and Death,’ is emphatic in declaring the religious and literary to be among the forms of life most conducive to longevity. ‘There are,’ says he, ‘in religious life, leisure, admiration, and contemplation of heavenly things, joys not sensual, noble hopes, wholesome fears, sweet sorrows, continual renovations by observances, penances, and expiations, all of which are very powerful to the prolongation of life.’ There is a popular notion, which has long been deeply rooted, that precocity of intellect is unfavorable to longevity. It has been shown conclusively that, as a rule, a

brain of exceptional force is united to a constitution of exceptionally good fibre, and that precocity, so far from being premonitory of early decay and death, is almost a mark of undeveloped abilities, and of a prolonged existence crowded with triumphant usefulness.

“Three of the most precocious geniuses of their day were Bishop Thirlwall, Lord Macaulay, and DeQuincey, yet they lived to the ages respectively of 78, 59, and 74. Of all the qualities of mind that conduce to longevity, none are more vitally essential than contentment, cheerfulness, and hope. Worry kills more men than the most exacting work, whether physical or mental. Legitimate work develops force, while worry checks its development and wastes what already exists. The physician should be engaged to protect the household and individuals from the assaults of disease, to detect and meet the first and very slightest indications of disorder; and thus we shall certainly see life prolonged.

“There is no doubt that long life, if it be virtuously and happily spent, is a blessing most earnestly to be coveted. The mere lapse of years, however, is not life; ‘knowledge, truth, love, beauty, goodness, and faith give vitality to the mechanism of existence.’ The value of time is purely relative; and if we count it by heart-beats, not by tickings of the clock, or the shadow of the dial; if ‘he lives longest,’ as Baily says, ‘who knows the most, thinks the wisest, acts the best,’ then many who were rich in years have really died young, while others, whose lives measured by the calendar were cut short early, have been rich in life.

“Shakespeare, who died at 52, lived ten times as long as poor old Parr, who could boast of his 152 years. Mere old age following an oyster-like existence, during which one has droned away his life in his shell, never buffeting the waves for himself or others, is a questionable blessing; but the serene old age which is secured by temperance, sobriety, and the conquest of vicious appetites and passions, the long mellow autumn of life, in which are harvested the fruits of years of useful toil, is to be coveted and striven for by all.”

Waists and Marriage.

A dress-reform advocate asserts that a man should not marry a lady whose waist measures less than twenty-five inches.

Potable Water.¹

BY J. CRIDDLE WHARTON, PH.D.



ATER for drinking belongs to one of the vital necessities which Nature has imposed upon living beings. This is as true, doubtless, of the smallest vegetable as of the largest tree, of the most insignificant as of the most important animal, the manner of drinking being understood as modified by the various living things according to their construction, organs, requirements, etc., in the most suitable way in their respective cases. Although it concerns mankind to have some regard to the drinking-water used by domestic animals, yet it is to his own kind that his greatest attention, care, and watchfulness are shown, in the search for wholesome water to drink. The wholesome water does not imply pure water. The former is abundant; but it is doubtful if, in the perfect sense, absolutely pure water has ever been seen by man. It is also doubtful if such ordinarily "pure" water as distilled water would be as wholesome as some other less pure forms termed "natural waters." It is well known, however, that many natural waters are not suitable for constant drinking. Those waters which are classified as mineral or medicinal have their valuable uses as remedial agents, but they are unsuitable to the large majority of the human race. Again, there are polluted waters constituting unsolved problems, or the dilemma of civilization. Such are our rivers, into which are turned, by dumping carts and sewers, all manner of refuse and filth, in a heterogeneous admixture, seemingly too foul, loathsome and baneful for any other disposal than a sort of semi-burial in our rivers, to a hasty resurrection, very often, on our own or our neighbors' shores,—yes, worse than that: on our own or our neighbors' tables, for constant drinking!

Turning from this class, rain-water is in our land available where cisterns are properly constructed and the filling of the same is carefully attended to. This kind of water is of the class called distilled water, as it falls from the clouds but takes up some foreign matter in the form of gases, smoke, and dust, in its descent

¹ From the Tennessee State Board of Health Bulletin.

through the air, then more foreign matter as it gathers on the roofs of houses, sheds, and surfaces prepared for collecting and distributing the rain; finally, another supply of foreign matter from the walls of the cistern, a portion of the cement being gradually dissolved by the water. This class of water, usually termed cistern water, is, if carefully collected and preserved, the freest from mineral matter in solution of natural waters, but is not necessarily the most wholesome or pure in the ordinary sense.

Spring waters and well waters are variable from "freestone" to very "hard," having very little or very much mineral matter in solution, according to circumstances governing the respective cases.

In investigating or determining the wholesomeness, or otherwise, of drinking-water, various steps are taken, from the simple methods of the ordinary user to the scientific analysis of the expert chemist.

A few general and special points given for the benefit of the ordinary user will be our object in what follows:

A given water may be judged to be good or bad for drinking without any tests being applied to the water itself, by learning a history of what it has proved itself to be in constant use, if the time has been sufficiently long to have given the water a history.

The next general conclusion which may be fairly depended on is gained by determining the classification of the water, thus: rain-water, melted snow, river water (the larger the river the better) are naturally good and wholesome. Creek water, branch water begin to be doubtful (the smaller the stream the more doubtful). These, with spring and well waters, need further investigation.

Locality, surroundings, sources, enter largely as factors in the general determination of the character, or probable character, of the water. If these are favorable and the class of water is favorable (such as a large stream would be), the water may be favorably considered. If the surroundings are unfavorable, the character of the water is questionable, no matter to what class it belongs.

The sensible properties of water come next in our arrangement.

If the water is white and clear (transparent), it may be good; but it is not so proved to be by its clearness alone.

If the water is cloudy or muddy and settles easily, it may be good.

If the water is cloudy and does not settle (clear) easily, it is suspicious and probably bad.

If the water is colored, even though transparent, it is suspicious, probably bad, though cistern water is sometimes colored from woody extracts.

If the water has no odor, it is a favorable showing.

If it has an odor, there is probably organic matter in it, and it may be bad.

The odor may be detected by half filling a bottle with the water, shaking it violently, removing the stopper and smelling. If no odor is observed in the cold water, warm it gently, shake and smell as before. If no odor is detected in this instance, let the water stand a day or two in the corked bottle, and test as at first several times during the interval.

A fishy odor is sometimes imparted to water by a vegetable growth or moss, and is not necessarily a bad indication, but is somewhat unpleasant, and suspicious if strong.

If no odor is perceived in the tests, the indications are favorable to the water being wholesome.

A foul odor is unfavorable.

A sour, yeasty odor is unfavorable.

An odor of sulphuretted hydrogen may arise from a mineral or medicinal water naturally, or it may arise from decomposing organic matter or sewage. The source of the odor will determine the question, if it can be found.

An ammoniacal odor would condemn the water for drinking purposes.

A smoky odor would probably indicate rain, snow, or cistern water.

Water exposed to vapors and odoriferous matter will absorb the volatiles. Cold water absorbs them with much more readiness than warm, and retains them in greater proportion as a general rule. Such water will have the characteristic odors to which it has been exposed, and may or may not be rendered unfit for drinking. Thus: carbonic acid gas may be largely absorbed by very cold water and not be injured, but rather benefited, by the "aeration." It may even have the pungent effect of the gas on the organs of smell without detriment to its wholesomeness.

Pure water, so called, has no tastes except the taste of water, which is otherwise undefinable.

If a water has a perceptible or "pronounced" taste, it is,

therefore, impure in some way. Many waters can be recognized at once by the taste. For instance, the mineral waters are very readily divided into three classes,—chalybeate, sulphuretted, and saline,—by the sense of taste. Rain-water can be distinguished from other waters by its peculiar, somewhat “smoky” taste. Strong limestone water has its own peculiar taste. Such waters as last mentioned, containing lime salts, are not regarded as unwholesome unless the amount of lime salts is about ten grains in one gallon of the water. It is asserted by good authority that water containing about this amount of carbonates and sulphates of lime and magnesia is indeed more wholesome and invigorating than a purer kind of water, the opinion being based upon careful statistics. River waters rarely have a definable taste except to persons who have cultivated the sense, or have naturally a keener sense of taste than ordinary. Spring and well waters very frequently have strong and characteristic tastes. It may be accepted, however, as true, that any water having a plainly perceptible taste is not desirable for constant, protracted use.

After the simple sensible tests above noted, and others which will occur to the thoughtful, have been made, other simple examinations or tests may be made with but little experience and with simple apparatus.

The amount of matter held in solution by water furnishes an indication of its quality. This soluble matter will, in most cases, be left as a solid residue upon the evaporation of the water. An ordinary plated “silver” tablespoon may be used by partially filling it with the water to be examined, and holding it over any convenient heating arrangement, as over the chimney of an oil-lamp, and evaporating the water at a moderate heat. The amount, color, taste, etc., of the residue furnish data which may be compared with results from the similar treatment of waters which are known to be good or bad. A water yielding much residue would not be suitable for constant drinking. Such water might be a valuable medicinal water, however, and used accordingly; or it might be unfit for drinking at all.

By heating the residue obtained as above explained to a charring heat, and observing the odor given off at this temperature, other data are found. Some organic matter will give off odors going under the general head of “empyreumatic,” and animal may sometimes be distinguished from vegetable matter by this procedure. Much empyreumatic odor would condemn the

water for constant if not for temporary use as a drinking water.

If the residue in the spoon be kept at a red heat for a little while all of the organic matter will be burned away, and the residue will indicate iron if it is reddish or ochrey in color, the more iron the redder will the color be. A white color may be due to carbonates, or sulphates, or other salts of calcium, magnesia, sodium, or potassium. The salts of sodium and potassium have a "salty" taste; the other salts have but little taste, as obtained in the experiment. In solution they act as "hardeners" of the water, and prevent the lathering of soap in a well-known way.

We may recapitulate briefly here,—

If a water is clear and has no color, no smell, no taste, and gives but slight residue on evaporation, which residue does not yield empyreumatic odors when charred or ignited, the water is presumably good and wholesome. We may say that such water would, under natural conditions, certainly be unquestionably good; but unnatural conditions abound, as we have intimated, in and around our densely populated cities and elsewhere. These play sad havoc, sometimes, with our naturally excellent water-supplies, and "germs," the bacilli of communicable and contagious diseases, find too easy access to our rivers, springs, and wells, and thence to our vital parts, fit messengers of death.

At this point the simple testing given above must be supplemented by the far more critical examination, study, and analysis of the water as is carried out by the analyst and microscopist.

Yet one more convenient test remains, which can be executed by any one. It is the one known as the permanganate of potassium test, and is performed by simply coloring the water to be tested slightly purple with a few drops of a solution of the permanganate, and noting the rapidity or slowness with which the purple color disappears. Foul water decolorizes the permanganate very speedily; pure water decolorizes it very slowly. Organic matter in general decolorizes it quickly or slowly as the proportion of the organic matter is greater or less. Sulphuretted waters decolorize very promptly, and should be noted as an exception to the general decision of bad as applied to waters which act promptly as decolorizers. Yet it must not be overlooked that some sulphuretted waters are foul, as before intimated.

There is a sugar-fermentation test which is sometimes recommended, but it needs to be interpreted in the light of other tests and analyses, and is, therefore, not for popular use.



The Campagna—Via Appia and Ruins of the Aqueducts of Ancient Rome.

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PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
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UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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Don't Filter the Water.

SOME of the Philadelphia newspapers have been lately warmly advocating the municipal filtration of Schuylkill water. We most earnestly and passionately say, "DON'T."

Of late years sanitary journals are full of, and sanitary conventions are entertained with, discussions upon the various methods of *artificially* purifying *naturally* impure water; some even going so far as to claim that sewage can be so thoroughly purified that the effluent will constitute perfectly wholesome drinking-water.

While we have all due respect for science, we have yet more regard for common sense and the teachings of experience.

Twenty years ago chemical analysis was accepted as an unquestionable criterion of the purity or impurity of water; not so to-day; we know now that water able to stand the test of chemical examination may yet be full of impurities detrimental to health.

Science may apparently demonstrate the possibility of artificially purifying water, but "*common sense*" reminds us that when art is called in to do the work of nature, a poor workman has been engaged for a delicate and difficult job.

Nature works in a cycle, and when she has made water impure she will again, by her own agencies, purify it if left to herself, but she does not require nor desire the intervention of art.

Common sense tells us this ; common sense tells us that the processes of nature ought to be, and must be, superior to those of art.

Now the teachings of experience come in to supplement the suggestions of common sense. When Rome was mistress of the world, the river Tiber flowed through the city, just as the Schuylkill River now flows through the city of Philadelphia, but we have no record that the scientists of ancient Rome ever suggested to the authorities the filtration or any other artificial method of purification of the filthy Tiber water ; they wisely left this task to " Dame Nature," and went far off into the mountains looking for naturally pure water, which they then transported to Rome in fourteen stupendous aqueducts constructed at enormous expense.

With the Romans, in Rome itself, as elsewhere throughout the world wherever the intelligence, culture, prowess, and common sense of the Romans were manifest, the paramount question ever was, not where can we get a drinkable water for the least outlay, but where can we get a pure water regardless of cost.

It is folly for any of our American cities (dotted here and there like fly-specks upon a limitless expanse of virgin soil) to speak of the impossibility of securing naturally pure water, and to seriously contemplate artificial purification of that which is foul. Such schemes may be necessary in over-crowded European countries, but they are ridiculous here.

That Philadelphia needs a new supply of pure water, no unprejudiced student of nature will deny, but we do not want artificially-filtered sewage.

Let us first ascertain where we can obtain *pure* water ; having done so, let us have it, regardless of cost, as the Romans did ; it will pay in the long run. Don't waste money on a system of filtration that will still further postpone the acquisition of a new source of supply.

Why is It ?

WHY is it that hygiene, which all, *theoretically*, concede to be the most important of all subjects? why is it that hygiene is, *practically*, one of the least popular? It would be hard to find an ordinarily intelligent man or woman, who would not cheerfully agree with the assertion that health is by all odds the most precious and desirable of human possessions;

yet it would require a Diogenes with his lamp to find enough of these *theoretical* sanitarians to respectably fill a small hall to listen to a lecture on hygiene.

There is a vast gulf between theory and practice, and in no instance is this gulf greater than in the question of hygiene. Mr. Horace Howard Furness, a trustee of the University of Pennsylvania, a man of exceeding culture, genealogically intellectual, one of those who would doubtless cheerfully admit, if asked, the supreme importance of hygiene, in a recent address was enumerating the new departments that have been created of late years in the University of Pennsylvania ; preceding his enumeration with this sentence, "*I do not give them chronologically in the order of their establishment,*" we find the "Wharton School of Finance" heading the list ; while the Veterinary Department comes fifth, and the Department of Hygiene *thirteenth*, in a list of seventeen new departments.

If Mr. Furness did not place these departments in the order of their foundation, what unconscious mental process formulated the order of the list ? Was it not the estimation in which these various subjects are held in the human mind ; not in the mind of Mr. Furness, but as his mind instinctively recognized them to be in the mind of average humanity ? Finance, or the *science of money*, first ; the science of the horse, the cow, the sheep fifth ; the science of human health *thirteenth* ; why is it ?

Some one has said to us that it is an instinct of humanity to go against that which they know and feel to be right. Is it therefore that humanity instinctively pulls against that which would give them health and happiness ?

It is a notorious fact that physicians are neglectful of personal hygiene, yet they certainly ought not to be ignorant of its doctrines ; why is it ?

For many years we have been reading and writing and reflecting upon the subject, yet we are compelled to admit that this *theoretical* acquiescence in the importance of, and this practical indifference to, the teachings of hygiene is, to a great extent, a mystery to us.

Unquestionably, the science of health is infinitely more popular to-day than it wastwenty years ago ; but this growth in popularity has been slow when compared with the importance of the subject, and it has been achieved only by the almost superhuman efforts of those who have devoted their lives to this work.

There is one encouraging thought about this very slowness of growth ; everything strong, lasting, and permanent in nature is slow of growth, and we are led to hope that this science of health crawling slowly upward is making sure of each step, and so firmly fixing itself in popular favor that the storms of fashion will beat against it in vain.

Why is it that in the University Extension Lectures we do not find lectures upon hygiene? This pertinent question is discussed, in a recent issue of the *University Extension Bulletin*, by Dr. C. D. Spivak. We know not what answer the lecture authorities would give to this question, but we would answer it by saying that hygiene is not found in the list of extension lectures, because those having these lectures in charge are satisfied that the subject would not attract.

One fundamental error in all education is that educators aim not to teach that which *should* be taught, but rather that which they believe the public *want* to be taught. To our way of thinking this is a mistake ; a mistake from the stand-point of theory ; but not from that of practice.

Vox populi, vox Dei ; what the people want they must have ; what the few may think the people *ought* to have they will reject.

The public does not want advice ; it wants to be entertained and amused. Now we are getting down to *our* answer to the question that heads this editorial. Is it not that the public has an erroneous idea of what hygiene means, and that this idea has been gleaned from the dry and uninteresting way in which the subject has been placed before it ?

Now for a confession : the editor of this journal is an enthusiastic sanitarian ; he believes firmly in the efficacy of hygiene ; he believes in the easy feasibility of the practice of its doctrines ; for years he has been attending sanitary conventions, and regularly receiving sanitary journals and health board reports ; yet in all these years he has encountered very few papers, addresses, lectures, or books that he has not found it mighty hard work to read. This may be heresy, but it is truth, and the confession is made because, to our way of thinking, it gives the explanation of the unpopularity of hygiene.

The public does not want long, learned, technical, unintelligible discourses upon scientific plumbing, ventilation, heating, disposal of the dead, filtration of water, etc. ; what they want,

what the people will read and listen to, is an entertaining and amusing paper or discourse containing throughout a current of hygienic thought. This journal finds hygiene a popular subject; we find plenty of persons ready and anxious to read and practise our little suggestions, but we venture to say that very few of our readers would have courage to “*wade*” through the long, uninteresting papers that are usually written on this subject.

In conclusion, hygiene will be popular with the public just as soon as hygienic instructors appreciate the fact common to all scientific subjects, that to make them popularly acceptable they must be popularly presented.

Simple Cure for Hiccough.

“I was just about to send a cure for hiccoughs to the New York man whose case had been puzzling the doctors, when I read that he had been cured by laughing heartily at a colored man’s description of what seemed to the patient a most ridiculous cure,” said a Pittsburg physician. “You hear of numerous cures for hiccoughs, such as holding your fingers in your ears and having some one give you a drink of water, holding one’s breath for a period, etc., but I doubt if any will stand the test as well as a practical cure, which for twenty years has never failed me once in all the hundreds of cases I have tried it. It may seem just as ridiculous as the cure proposed by the colored man in New York, —so ridiculous that many will not think it worth while to try; it may be, nevertheless, a sure cure.

“All you have to do is to lie down; stretch your head back as far as possible; open your mouth widely; then hold two fingers above the head, well back, so that you have to strain the eyes to see them; gaze intently upon them, and take long full breaths. In a short time you will be relieved of that troublesome hiccough.

“Now I have tried that cure on all sorts of cases, from the simple form to the chronic, and it works well with all. I remember it was given to a man on the way to New York to consult a specialist on his case,—one of six months’ standing,—and it cured him in a few minutes. He turned around and said, ‘What do you charge for that?’ ‘Nothing,’ was the reply, ‘except that you publish it to sufferers.’”—*The Medical and Surgical Reporter*.



Typhoid in Paris.

The death-rate from typhoid fever in Paris has been reduced from 147 in over 100,000 in 1882 to 27.7 in 1893. This is all said to be due to the better supply of water.

School Boards and Vaccination.

The Supreme Court of Pennsylvania has confirmed the decree of a lower court to the effect that school boards have the right to exclude from the public schools children who have not been vaccinated.

Duty to our Neighbors.

If your neighbor is vaccinated to protect himself *and you*, it is almost suggestive of meanness on your part to rely on your neighbor to save you from small-pox while you fail to do your part for the public safety by neglecting or refusing to be vaccinated.

Freckles and the Red Parasol.

The fashionable "fad" in Chicago of the red parasol is now defended on the ground that it is an efficient freckle-preventer,—the actinic rays of the sun, which it is claimed are the cause of the pigmentation, being intercepted in passing through a red medium. —*Journal of the American Medical Association.*

Typhoid Fever and Vaccination.

Dr. William Finder observed that after typhoid-fever patients recover they are very susceptible to vaccination. This observation has been verified many times during a number of years, and the writer suggests that others confirm or disprove the theory. So satisfied is Dr. Finder with the correctness of the observation, that he now revaccinates his typhoid patients as soon as they recover from the fever.—*Medical News.*

Royal Ladies who Smoke.

A census has been taken of the cigarette-smokers among the ladies of the courts of Europe, and it has been found that the majority of them indulge more or less openly. Among them are the Queens of Italy, Spain, and Portugal, the Czarina, and the Empress of Austria.

Taking Precautions.

Little Corrine.—“I know a awful funny story, Fowence. My mamma told me when I had the dipferia.”

Florence.—“Tell me, won’t you?”

Little Corrine.—“Oh, I can’t, ’cause you might catch the dipferia, don’t you see.”—*Judge.*

An Industrial Farm for Inebriate Women.

An English woman physician, Dr. Anderson Brown, has established an industrial farm for inebriate women, an experiment that will be watched with interest by all students of social economics, as well as the world of law and order. The test is to be made under the auspices of the Women’s Temperance Association, and one of its chief features is to be the number of out-door occupations to be provided.

Milk as Drink.

Milk is an important food, and should not be taken as a drink simply. If eaten as the Persians use it, holding it in the mouth until it is thoroughly combined with the saliva to aid in its digestion, as a part of the meal it is all right, taking the place of other food. It requires digestion as necessary as any other food, but, that it may digest, it is first formed into a solid mass,—“curd,”—and is then acted upon like other solids. Unlike water, which requires no digestion, as a drink, it cannot take the place of our special drink between the meals without much taxing the organs of digestion. This principle is well illustrated by the fact that the nursing infant cannot take its food rapidly, as it must pass through many small orifices, sieve-like, the drawing process exciting the flow of the saliva, aiding in the digestion of the milk and the nourishment of the babe. I repeat, emphatically, that it is food and not a proper drink.

Curiosities of Cholera.

It is a fact of the various cholera epidemics that have swept Europe that in every one the mortality at Rome and Madrid was greatest on Sundays, at London and Berlin on Wednesdays, and at Paris on Saturdays. At present, in St. Petersburg, where the death-rate is upward of 100 daily, the mortality list is increased one-fourth on Saturdays—*Medical Age*.

Postal Transmission of Small-Pox.

Dr. Karkeek, the health officer of Torquay, England, records in his report for last year the occurrence of two cases of small-pox in which the infection was conveyed by correspondence from a nurse in a small-pox hospital. One of the cases occurred ten years back, and the other last April, the patient falling ill two days after leaving Torquay. His friends had suggested risk from reception of letters written by a hospital nurse engaged in attending small-pox cases, but he had pinned his faith on supposed disinfection of all letters. How far he was mistaken in his supposition was shown by the sequel.

To Increase the Birth-Rate of France.

Stringent laws have recently been enacted by the French government, which, despairing of obtaining any increase in the birth-rate of the land, is endeavoring to save the few children that are born. One of these regulations forbids, under a severe penalty, any one to give infants under one year any form of solid food, unless such be ordered by a written prescription, signed by a legally qualified medical man. Other regulations are equally restricting, and, as the French have a knack of enforcing their enactments down to the most trifling ones, as American visitors to Paris often find to their cost, it is probable that many childish lives will be saved. One could wish, on seeing an East-Side tenement mother feeding her few months' old baby with a peach or banana bought from the curb fruit-stall, after half a day's exposure to the August sun, that the municipality of New York would copy a few of these French regulations. It would vastly lessen the work of the dispensaries and visiting tenement physicians.—*Medical Record*.

Primitive Comfort for Babies.

“The hygienic treatment to which Dorothy Drew, Mr. Gladstone’s little granddaughter, is subjected,” says a well-known writer, extends so far that she always goes barefoot, in-doors or out, except in very muddy or bitterly cold weather. Her dress and fare are of the simplest, and she is one of the healthiest, happiest, and most irrepressible of children.—Dr. C. E. Page, on “Summer Comfort for Babies.”

Soap as a Germicide.

During the cholera epidemic, experiments were made for the purpose of discovering the best germicide for sterilizing the water to be used for bathing. It was found that ordinary toilet soap in the proportion 2.5 to 1000 parts will kill the cholera bacillus in ten or fifteen minutes. Soaps containing salicylic acid and carbonic acid are found to give no better results than ordinary toilet soap. A bath of thirty gallons of water would require a little more than one-half pound of soap. A gallon of water would require two and a half drachms, or a little more than one-fourth of an ounce.—*Modern Medicine*.

Sanitary Insurance.

Dr. G. W. Steeves proposes, in the *Nineteenth Century*, a method of sanitary insurance which has the merit of novelty and which seems not impracticable. This plan is that any city or district may organize for itself a sanitary protective and insurance association founded for the purpose of providing the public with a source of protection against unsanitary dwellings and surroundings. The definite objects would be: (1) To examine into the sanitary condition of any building previous to tenancy, or after, and to afford skilled advice on hygienic matters or appliances, either on existing premises or on the plans of proposed arrangements of new buildings. (2) To issue certificates respecting the sanitary condition of dwelling-houses and buildings. (3) To provide the means by which a cleanly and wholesome state of dwelling-houses and premises may be maintained. (4) The sanitary registration of dwellings. (5) The insurance of buildings against a defective sanitary condition.—*Medical Record*.

The Offspring of Habitual Drunkards.

* Dr. Paul Garnier, of Paris, has made a special study of those slum children that are the offspring of habitual drunkards. He says: "There is a flaw in the very nature of these young wretches that the psychologist sees clearly and notes with apprehension,—the absence of affectionate emotions, and where they did not become lunatics, they show 'insensibility and pitelessness.'"

The Origin of Typhoid Fever.

Dr. Kenwood read a paper before the Section of Public Health at the Bristol meeting of the British Medical Association, in which he advanced the opinion that typhoid fever might be developed from simple diarrhoea, the specific bacillus springing by a process of evolution from the bacterium coli commune. He believed that dogs might be carriers of the disease, and cited four cases in support of this view. In one case an examination of the stools passed by a dog, prior and subsequent to the appearance of typhoid fever in a household in which there was no other discoverable cause, revealed the presence of typhoid germs.

An Interesting Theory of Depopulation.

In an elaborate essay on the "Origin of Neoplasms in General, and of Cancer in Particular," now in course of publication in the *Progrès Médical*, M. A. Wassilieff formulates the following "general law:" "Living matter reproduces itself more readily the more inferior it is, other things being equal." In this formula, we are assured, is contained the general theory of the development of all new growths. But the "law," according to our author, has a much wider application than this. It explains, among other things, the depopulation of France, which is causing some alarm to French statesmen. M. Wassilieff's view is that "what is erroneously called 'the depopulation of France,' " is, in fact, a conclusive proof of the innate superiority of that nation to all others. While inferior countries, like England and Germany, are increasing and multiplying like the lowly organized bodies they are, the French race is dying of its own greatness. Whether the French people will find consolation for their approaching absorption into the infinite in the consciousness of their superiority may be open to doubt.—*Medical Record*.

Prevention of Boils.

Dr. Rosenbach (*Münchener medicinische Wochenschrift*), in order to prevent the development of crops of boils in the back of the neck and nose, especially advises persistently rubbing the region attacked with some fatty substance, as cold cream, lanolin, unsalted butter, or lard. Lanolin above all is to be preferred. The development of boils is due to dryness of the skin, and by inunction of a fatty substance the dryness is removed and the penetration of micro-organisms prevented.—*Ex.*

Healthfulness of Minneapolis and St. Paul.

In explanation of the small death-rate of these cities it is stated that “the drainage is perfect, the water-supply abundant and of the best; malaria is unknown; phthisis and other diseases that fasten upon particular localities are rarely found here, except as importations; zymotic diseases, when they occur, are, as a rule, of mild type, the malignant forms appearing but rarely; and the worst features of the climate—that is, its extremes of heat and cold—are more trying to the nervous system than injurious to the general vitality. In fact, the only diseases that prevail here to an average extent are those with which climate has little to do, such as the diarrhœal diseases of children, cancer, the accidents of childbed, and the like.”—*Medical Record.*

“Quacks.”

The Lady Morgan of my early days (writes Autolycus, in the *Pall Mall Gazette*) used to quote the following (supposed) correspondence with the late Dr. Jenner :

I've despatched, dear Lady Morgan, this scrap of a letter
To say that Miss Charlotte is certainly better.
A regular doctor no longer she lacks,
And therefore I've sent her a couple of quacks.
(With the above note came a couple of wild ducks.)

Lady Morgan's reply :

Yes, 'twas politic truly, my very good friend,
Thus a couple of quacks your patient to send,
Since there's nothing so likely as quacks, it is plain,
To make work for a regular doctor again.

The Oldest Man in the World.

A Frenchman now living in Russia is said to have attained the immense age of 126 years. From a very interesting account of his life, just published in a Russian journal, it appears that he was born in Paris on April 17, 1768. He has a vivid recollection of the "Terror." He joined Napoleon's army in 1798. He fought in the battles of Austerlitz and Jena, shared in the campaigns of Egypt and Spain, and finally was one of the 400,000 men who followed Napoleon to Moscow.

Early Rising.

The following calculation is interesting: Suppose one boy, aged 10 years, determines to rise at five o'clock all the year round. Another at the same age, indolent and fond of ease, rises at eight, or an average of eight, every morning. If they both live to be 70 years old, the one will have gained over the other, during the intervening period of sixty years, 65,745 hours, which is equal to $2739\frac{1}{3}$ days, or just seven and a half years. If a similar calculation were applied to the whole country, how many millions of years of individual usefulness would it prove to be lost to society? —*Good Health.*

The Vitality of Meat-Eaters.

Sir Frances Head (*Gentleman's Magazine*) says: "The Pampas Indians are all horsemen, or rather pass their lives on horseback. In spite of the climate, which is burning hot in summer and freezing in winter, these brave men, who have never yet been subdued, are entirely naked, and have not even a covering for their head. They have neither bread, fruit, nor vegetables, but subsist entirely on the flesh of their mares.

"After I had been riding three or four months, and had lived only on beef and water, I found myself in a condition which I can only describe by saying that I felt no exertion could kill me. Although often so completely exhausted I could not speak, yet a few hours' sleep always so completely restored me that for a week I could daily be upon my horse before sunrise, and ride till two or three hours after sunset; have really tired ten or twelve horses a day. This will explain the immense distances which people in South America ride, which I am confident could only be done on beef and water."

Fruit-Eating to Cure all Ills.

A new society of cranks has been started by a former lieutenant in the German army. His name is Boeter. He is the leader of a new "ism," and as such sailed recently from San Francisco to Honolulu. The "Fruitarians" is the name of the new society he represents, and their belief—or rather notion—is that modern civilization is full of vanities and strange notions, and greatly needs reforming. The members eat nothing but ripe fruit, eschew cooked food of any kind, and drink only water. They are to live in huts, bare of the comforts of civilization, and go naked. Ex-Lieutenant Boeter intends to buy a large tract of land in the Sandwich Islands, or, perhaps, a small island outright, for the purpose of founding a colony.

The Effects of Smoking upon Muscular Work.

Professor Vaughn Harley, and Grover Research Scholar, publishes in a recent number of the *Journal of Physiology* the results of an extended series of experiments in relation to causes which influence muscular work. Among the various experiments undertaken by Professor Harley, some of the most interesting relate to the influence of tobacco-smoking upon muscular work. The idea is generally prevalent among smokers that a larger amount of work can be accomplished under the influence of tobacco than without it,—at any rate, that smoking, even if it does not increase muscular power, lessens the sense of fatigue, and thus enables the individual to continue working longer than he otherwise could do. Professor Harley's experiments had relation to two points,—

- (1) The amount of work which could be accomplished ; and—
- (2) The length of time during which work could be performed before the point of absolute fatigue, with inability to continue work, was reached.

He found, as the result of his experiments, that even moderate smoking in a person accustomed to smoking so that the primary toxic effects of the nicotine were eliminated, the amount of work which could be accomplished was not increased, and that the approach of fatigue was not retarded. Tobacco-smoking, on the contrary, to use the words of Professor Harley, "slightly diminishes muscular power and hastens the onset of fatigue."

An Improved Footwear for Soldiers.

On the late visit of Prince Bismarck to the emperor, the latter called the attention of the ex-chancellor to the improvements made in the boots of the Prussian infantry. This consisted in the displacement of the old-fashioned steel nails by nails from aluminum, which is much lighter and more durable. The extra weight under the sole of the foot imposed by the heavy nails formerly worn, and the added weight consequent upon the clogging mud in nasty weather, made a great and needless extra amount of muscular expenditure necessary. The new arrangement will permit of longer and better marching, with fresher troops at the end of the day.

A Word for the Sleepless.

Dr. J. E. Huxley, of Maidstone, England, thinks he has hit upon the natural remedy for sleeplessness. It is, in brief, to curl under the clothes like a kitten, or put the head under the wings like a hen. His detailed description of the technique is given in a letter to the *Medical Press and Circular*, when he says: "This insomnia seems now to be a universal affliction. We live wrongly; sit up late and overwork the brain, and thus go to bed in an excited condition. No one seems to have hit upon the natural remedy. I think I have. People take chloral and the like at their peril, and a fatal consequence not seldom ensues. It is all wrong, for you cannot control the dose required for the exact circumstances. But try nature's plan instead,—lower the supply of oxygen to the blood, produce a little asphyxia, limit the quantity of air to the lungs, and the heart and circulation becoming quicker, the brain loses its stimulant, and sleep follows. When you find yourself in for a sleepless night, cover your head with the bedclothes and breathe and rebreathe only the respired air. Thus you may reduce the stimulating oxygen and fall asleep. There is no danger. When asleep you are sure to disturb the coverings and get as much fresh air as you require, or when once drowsiness has been produced, it is easy to go on sleeping though the air be fresh. What do the cat and dog do when they prepare to sleep? They turn round (generally three times) and lastly bury their noses in some soft hollow in their hair or fur and "off" they go. They are in no danger, although it might look as if they were from the closeness with which they embed their noses.

—*Medical Record.*

Gold-Mines in Cemeteries.

A writer in *Le Temps*, of Paris, has been travelling in America, and, of course, relates his "impressions." What struck him particularly was, not the Falls of Niagara, the inquisitiveness of reporters, or the consumption of pie, but the fillings in American teeth. He has consulted the statisticians, and finds that the amount of gold annually pounded into our dental cavities reaches the respectable figure of 800 kilogrammes, representing a value of half a million dollars. All this precious metal is buried with the Yankees when they die, and, consequently, at the end of three short centuries the cemeteries of the United States will contain gold to the value of \$150,000,000. He thinks this will prove too tempting to the practical mind of the future American, and foresees the day when companies will be organized to mine the cemeteries and recover the gold secreted in the jaws of deceased ancestors.—*Medical Record*.

Typhoid Germs carried on the Finger.

Uffelmann has reported some experiments which indicate that typhoid germs and other pathogenic germs as well may be carried from one person to another by neglecting to cleanse or disinfect the hands. The following is a brief statement of the experiment: Having moistened the finger with liquid containing cholera-germs, the finger was allowed to dry, and was then rubbed on a piece of roast beef. Some time later a great quantity of cholera-germs was found developed upon the beef. In the same way typhoid fever might be communicated to food, to drinking-cups, and other utensils, whence they might easily find their way into the alimentary canal of some human body. The *Sanitary Journal* reports the following circumstance, which seems to illustrate this method of communicating typhoid fever: "Several very rapidly-fatal cases of typhoid fever followed a case in a family, the mother of which lacked a proper sense of cleanliness. After attending to the wants of her sick child, the next moment she employed her hands in preparing a meal for the well members of the family." Too much care cannot be taken in the disinfection of hands and in the observance of all the rules of cleanliness, in the most rigorous manner possible in the care of patients suffering from germ-diseases of any sort.—*Modern Medicine*.

Tea-Poisoning.

The influence of tea-drinking upon the human organism, and especially its relation to insanity, is being investigated by the commissioners appointed for this purpose in Ireland. The increase of insanity in that island suggested a relationship between it and the excessive consumption of tea. The Irish peasantry make a strong decoction of tea which is allowed to steep all day; and this with bread constitutes the three daily meals. The excess of tea causes a general debility of the nervous system and leads to a form of dyspepsia. The nervous unrest accompanied by insomnia frequently terminates in a permanent mental disorder. To tea-drinking is also ascribed dental caries, which is on the increase among the peasant and laboring classes. Hot solutions of tannin accompanied by bread cover the teeth and furnish a fertile culture medium for the various microbes.—*Pacific Medical Journal*.

Infant Feeding.

An infant should double its weight in six months, and treble it in a year, if its nutrition is in every way satisfactory. The weighing and measuring should be conducted monthly, and the practical point is this: If a child does not increase at the rate of one pound a month during the first year of life, and twelve ounces a month during the second year, its nutrition is not satisfactory. If a child does not grow nearly three-quarters of an inch every month during the first year of life, and half an inch a month during the second year of life, it is not satisfactory. The latter is, of course, not of the same importance as the former. A nurse should cease nursing if the result does not come near to this proportion with regard to increase of weight. Clearly, premature children would not be so large, though they should increase at the same ratio.—Percy Boulton in *British Medical Journal*.

Why a Cemetery is so Called.

Webster says a cemetery is "a place where the dead bodies of human beings are buried." But that is all he says, and there is not a five-year-old child in the land who could not tell us as much without referring to his "Unabridged."

In tracing the derivation of the word, it is found that the root is an old Hebrew word, "*cæmeteria*," meaning dormitories,

or sleeping-places. Later on, the form of the expression was changed to "*requietorium*." In that section of "Camden's Remains," which has the heading of "Concerning British Epitaphs," the following occurs: "The place of burial was called by St. Paul '*semenatoria*,' in the respect of a sure hope of a resurrection." The Greeks call it "*cæmeterion*," which means a "sleeping-place until the resurrection." The old Hebrew word for a place of burial means "the house of the living," the idea being that death is only a protracted sleep that will terminate on the day when Gabriel blows his trumpet.—*St. Louis Republic*.

Death-Rate of Large Towns.

The following table shows the mortality of the cities of this country and Europe having a population of 100,000 or more :

| | Population. | Deaths. | Death-Rate per 1000. |
|-------------------------------|-------------|---------|-------------------------|
| London | 5,849,104 | 55,895 | 17.11 |
| Paris | 2,424,705 | 28,675 | 23.61 |
| New York | 1,801,739 | 23,856 | 26.47 |
| Berlin | 1,669,124 | 17,181 | 20.58 |
| Chicago | 1,458,000 | 13,590 | 18.95 |
| Vienna | 1,435,931 | 18,005 | 25.07 |
| Philadelphia | 1,115,562 | 12,249 | 21.95 |
| Brooklyn | 978,394 | 10,682 | 21.84 |
| St. Louis | 520,000 | 4802 | 18.47 |
| Brussels | 488,188 | 4359 | 17.86 |
| Boston | 487,397 | 5816 | 23.88 |
| Baltimore | 455,427 | 4806 | 21.10 |
| Dublin | 349,594 | 4735 | 27.05 |
| San Francisco | 330,000 | 3006 | 18.21 |
| Cincinnati | 305,000 | 3000 | 19.67 |
| Cleveland | 290,000 | 2538 | 18.19 |
| Buffalo | 290,000 | 2361 | 16.28 |
| Pittsburg | 255,000 | 2923 | 22.92 |
| New Orleans | 254,000 | 3298 | 28.72 |
| Edinburgh | 267,000 | 2572 | 19.22 |
| Milwaukee | 250,009 | 2000 | 16.00 |
| Louisville | 227,000 | 1630 | 14.80 |
| Minneapolis | 209,000 | 1004 | 9.60 |
| St. Paul | 155,000 | 745 | 9.61 |
| Christiania, Norway | 156,500 | 1385 | 17.75 |
| Denver, Col. | 150,000 | 871 | 11.61 |
| Rochester, N. Y. | 144,834 | 1291 | 17.87 |
| Rheims, France | 105,408 | 1503 | 28.62 |

The Question of Disinfection of Apartments.

Chamberland and Fernbach (*Revue scientifique*) say: The disinfection of apartments that have been occupied by patients suffering from contagious diseases is of great importance. Experiments are being constantly made with the object of discovering a reliable disinfectant, free of destructive or noxious properties. While linen, clothing, and bedding can be easily disinfected with steam, with or without pressure, the walls, ceiling, and floor are the great difficulty. Corrosive sublimate, besides being a dangerous poison, is not efficacious when the surfaces are not smooth. The essences, as shown by Ch. Chamberland, are valuable antiseptics, but it requires several days before some pathogenic germs are destroyed. Peroxide of hydrogen acts better than ozone, and destroys the germs rapidly if applied with a spray, but it is expensive. From numerous experiments made on the bacillus subtilis, the aspergillus niger, the torula cerevesiæ, the typhoid bacillus, and others, Chamberland, one of the distinguished directors of the Pasteur Institute in Paris, and his collaborator, concludes that chloride of lime in the proportion of 10 per cent., at a temperature of 40° to 50° C., is the best and cheapest disinfectant.—*New York Therapeutic Review*.

Special Exercise to Correct and Prevent Constipation.

Friction, rubbing, or massage over all parts of the abdomen two or three times per day by the patient himself, or less frequently by a good magnetic operator, will help to promote vital action of the bowels. If not convenient for the patient to walk or ride for exercise, he can secure the advantage of both in large degree by the following exercise, taken in his room.

Standing with the feet well apart, to broaden your base, bend or flex the lower limbs at the knees and extend the same about twice a second, or one hundred times a minute, for several minutes at a time three or four times a day, and at the same time twist or turn the body above the hips first to the right and then to the left as far as you well can, resting the hands upon the hips or allowing them to hang by your side. At each turn of the body towards the right or left you will bend the knees about three or four times. You thus use chiefly the flexors and extensors of the thighs and the rotating muscles of the trunk. The motion of the body is

meanwhile up and down, and the motion of the chest and head is alternately to the right and left. To facilitate the turning of the body, the heel of the limb opposite the one on which you rest, as the body sways from side to side, may be raised so as to allow the limb to turn upon the ball or toe of the foot. To get the best effect of this exercise, the head must be kept well up, the shoulders back, and the spine erect during exercise. The bowels may generally be allowed to rise and fall with the body, but at times it is well to exercise the diaphragm by endeavoring to draw beneath it the liver and viscera of the abdomen.—*Journal American Health Society.*

Effect of Climate on the Development of Children.

This is the title of a paper by Dr. T. C. Duncan, which is of interest to climatologists generally. In the course of the paper he observes that physicians, who have made special observations on the difference between American and English children, report that the latter are more substantial, thickest, and less bright and active. Dr. Duncan attributes this difference to climate; England being more rainy and cloudy, and America more sunny and drier. American children are certainly more nervous from our drier atmosphere. Much of the apparent great composure of the English child is, however, an inherited as well as an acquired and cultivated sociological trait, not at all dependent upon the climate. Association has here a wonderful contagious effect. We all know that gesticulations, shrugging of the shoulders, and facial mobility during conversation, are supposed to be peculiarly Gallic accompaniments, and yet we have repeatedly seen reserved and taciturn Americans—a kind of a cross between the solemnity of our Puritan fathers and the stolidity of a blackfoot or of a Sioux—grimace, gesticulate, curve his back and hump his shoulders, wink and blink like a Marseillaise the moment he acquired a fluent use of Spanish. Americans residing in England soon become more sedate, and American boys educated in England or France soon acquire more staid actions as well as a more staid form of expression in their speech, without losing any of their brightness. The moister air of England or of western Europe tends, however, to giving American children a more substantial body; they round out better and are not as restless as they are at home.—*National Popular Review.*

Climate and Health.

For the sanitarian the climate of any region ought to be as much studied as its drainage and water-supply, though, perhaps, the latter are more under control, but an intimate knowledge of the climate will often clear up ambiguities of results in sickness and mortality statistics and enable certain precautions to be taken which may prove of the greatest advantage. Many diseases, such as dysentery and cholera, have been traced to the drinking of impure water ; others, like yellow fever to epidemic and not climatic origin, and in the great majority a bacterial origin seems highly probable, which has been traced in malarious and in other fevers.

Whilst recognizing the germ origin of many of these maladies, we must not forget that while climate is not the actual *vera causa*, it may, and probably does, constitute the principal conditions under which the germs develop, grow, multiply, and diffuse themselves, thus becoming of equal importance to the germs. A glance at the geographical distribution of yellow fever or dysentery will show they only prevail in tropical or subtropical regions, and that they require a certain degree of temperature for their development. Yellow fever is perhaps more controlled by climate than any fever, for it is only found between 31.70° north and 22.5° south latitude. Its relation to climate is shown by its requiring for its existence and diffusion a temperature of not less than 70° F., together with a certain degree of moisture. It can only prevail during hot and moist seasons, but is extinguished by a heavy rainfall, by cold winds, and by frost or snow. It exists at sea-level and is rarely found at any considerable elevation above the sea. It infests seaports, and, as a rule, the most crowded and insanitary quarters ; it spreads by infection, and attacks strangers coming from northern countries in preference to natives. Some races, as the negroes and Chinese, are exempt. Dysentery, again, though doubtless due to bad drinking-water, unwholesome food, and imperfect drainage, and thus liable to prevail in temperate countries, is unquestionably far more common and serious in tropical regions, the conditions of heat moisture favoring the growth of its element of causation.—C. Theodore Williams in *Popular Health Magazine*.



Coca Erythroxyton.

WE need not enter into a full description of the history of the Erythroxyton Coca, as we believe that most medical men are fully acquainted with the principal facts concerning the plant. We may, however, recall to mind that the leaf is the only part of the plant used. Very much depends, therefore, upon the plucking of the leaf, and the time at which it is plucked; the subsequent care of the leaf being matter of considerable importance, and affecting very materially the preparations made from it. M. Mariani was the first in Europe who took up the study of the plant, and over thirty years ago commenced manufacturing for the medical profession the various specialties associated with his name,—viz., “Vin Mariani,” “Elixir Mariani,” “Pâte Mariani,” “Thé Mariani,” “Pastilles Mariani,” etc., preparations which are known all over the world, and which have acquired their well-known reputation by their purity and efficacy. The stimulating and strengthening property of the leaf in its natural state has been tested by experienced travellers and botanists during several centuries, and it is this invigorating property which the physician wishes to bring into use, and which he is enabled to do in a palatable form by means of “Vin Mariani,” this wine being indicated where there is great depression, long continued exhaustion, and where a special stimulative action is desired. “Vin Mariani” is agreeable, palatable, imparting by its diffusibility an agreeable warmth over the whole body, and exciting functional activity of the cerebro-spinal nerve-centres. We have frequently prescribed this wine, and we can, from practical experience, recommend it.—*The Provincial Medical Journal, London, England.*

WASHINGTON, D. C., September 11, 1894.

GENTLEMEN: I desire to thank you for samples of the drug, often, but poorly imitated, made by your firm and known as “Antikamnia.”

The adoption of the monogram on the new tablets, and the recall of all the old stock from the market, will prove of benefit to you and the many physicians who may hereafter desire to afford relief by its use.

Yours respectfully,

TO THE ANTIKAMNIA CHEMICAL CO.,
St. Louis, Mo.

C. E. POSTLEY, M.D.,
1429 11th St., N. W.

Terraline in La Grippe; Broncho-Pneumonia. By J. B. Garber, M.D., Stanton, Ala.

I READ with unusual interest an article on “Some Experiments With Terraline” in the November number of *Food*. Showing that your conclu-

sions are correct, and that we have a valuable addition to our therapeutic list, I submit the following case:

Miss —, a young lady of delicate physique, aged about 20, had a severe visitation of la grippe in the winter of 1891, from which she apparently recovered only to have a severe recurrence of it the following winter. From the second attack she did not entirely recover, and when in July, 1893, she consulted me, her respiration was rapid and shallow, with an inability for even slight physical exertion; pulse small, quick, and frequent, 120; countenance pale; skin cool and clammy; temperature 100° F.; a deeply-seated cough that greatly aggravated a constant, severe pain in the left side; worse at night, often preventing sleep; appetite mostly absent; marked debility and prostration; weight about eighty-four pounds.

I felt satisfied that my patient had had broncho-pneumonia in her last experience with la grippe, and even at the time of my taking the case her lung was crippled with an effusion of catarrhal products into the lung-tissue. As she had taken cod-liver oil, iron, quinine, strychnine, etc., without experiencing relief, I immediately put her on "Terraline," manufactured by the Terraline Company, Washington, D. C.

In a short time she experienced improvement in the appetite, with a gradual amelioration in the cough. Under the continued use of "Terraline" she reported herself in December last as "nearly well." Recent advices from her report her condition improved beyond the most sanguine expectations; appetite restored; cough entirely gone; sleeps well; weight 128; in short, declares herself "perfectly well."

Throughout the treatment only "Terraline" was given, and I would emphasize the fact that improvement speedily began under its use.—*National Medical Review.*

A Reliable Preparation.

Since their introduction, the hypophosphites, it is claimed, have firmly maintained their hold on professional and popular confidence, and to-day are prescribed alone and in combination by more physicians than any other remedy. This is strong testimony to their superior worth, because of their fine tonic and constitutive properties, which have been and will continue to be a means of relief and strength to thousands. McArthur's Syrup Hypophosphites (Lime and Soda) Comp. is a reliable preparation worthy of trial. If a stimulant is needed you may add it. It isn't there when you do not need it, as McArthur's Syrup is simply a tissue-builder, a permanent tonic.

A Grand Prize Awarded.

William R. Warner & Co., of Philadelphia, announce that they are in receipt of a cablegram from London, stating that they had received at the Antwerp Exposition a grand prize for the purity and excellency of their preparations.



FIG. 1.—Portable hospital (Doecker pattern) as adopted by the Imperial German government for use in infectious diseases and warfare.

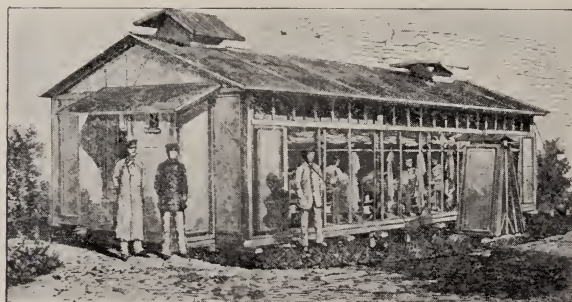


FIG. 2.—Dr. zur Wieden's hospital, with open walls for summer use.

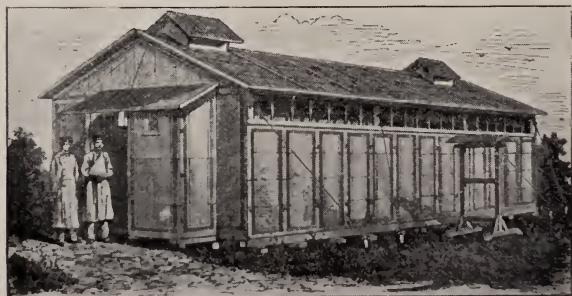
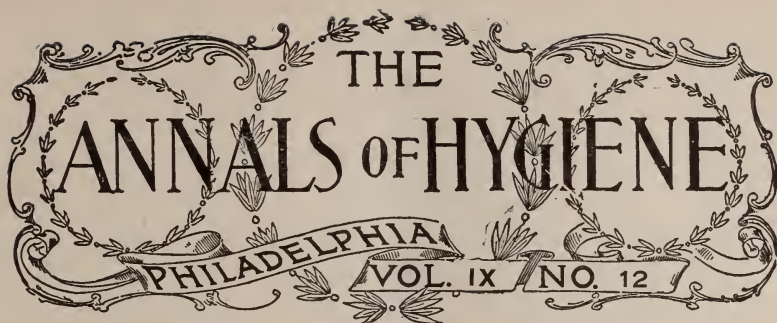


FIG. 3.—Portable hospital (Dr. zur Wieden's pattern), with thick walls for winter.



COMMUNICATIONS.

Portable Hospitals for Use in the Field and in Epidemics.¹

BY F. W. ELSNER, F.R.C.S. (IREL.),

Late Surgeon-Captain, Victorian Military Forces, Sydney, New South Wales.

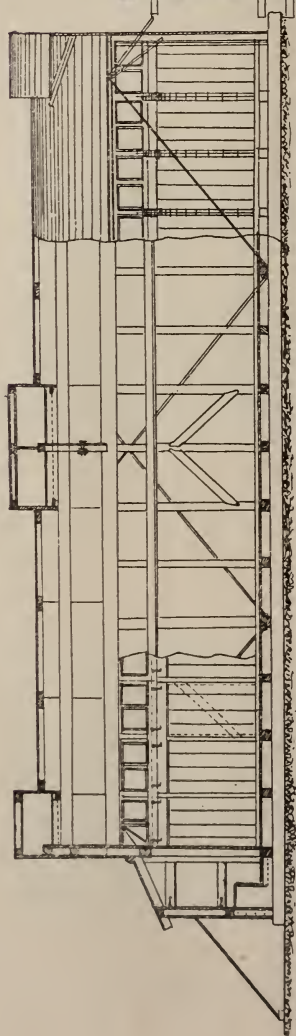
A DISTINCT advance has been made in the direction of providing better hospitals of the third line for the German Imperial Army, as well as for the reception of cases of infectious diseases liable to occur during the progress of a war, and which, becoming transplanted from the armies to the unfortunate residents, have sometimes decimated whole districts. Impressed with the vital importance of these hospitals, I welcome the opportunity of bringing this matter to the notice of our American brethren through the *International Medical Magazine*.

The hospitals to which I desire to draw attention, however, are not alone destined to play an important part in the next European conflict, which it is to be devoutly hoped will not take place in our generation, but they stand unrivalled for use by boards of health, municipalities, and other corporations charged with the duty of dealing with outbreaks of infectious disease within their districts. They have already been in use throughout Germany for that purpose, notably during the late cholera epidemic at Hamburg. Their use materially aided in checking the epidemic.

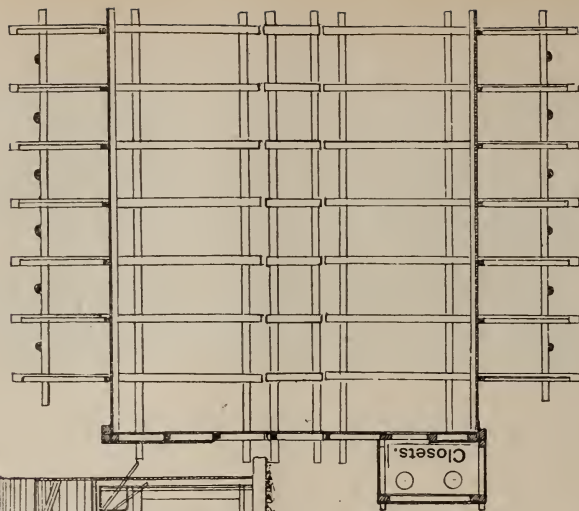
¹ From the *International Medical Magazine*.

Portable Hospital (Dr. zur Nieden's Pattern).

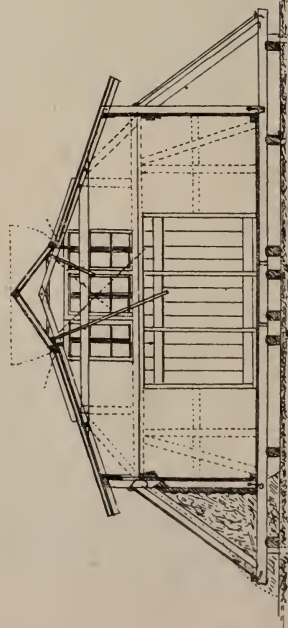
Longitudinal Section.



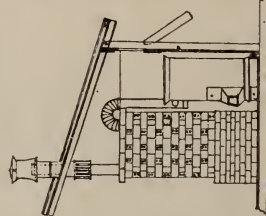
Half of the Foundations.



Transverse Section.

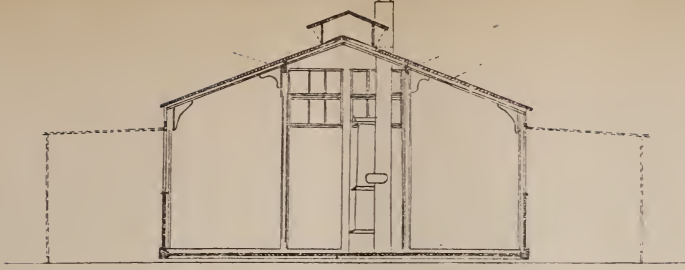


Heating Apparatus.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

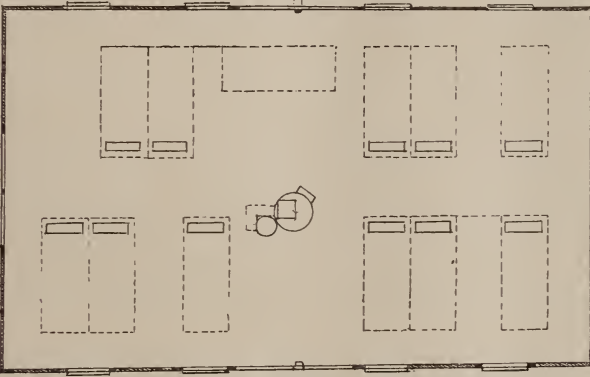
Transverse Section.



Longitudinal Section.

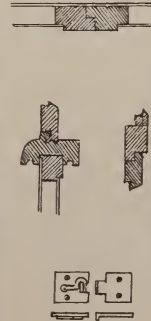
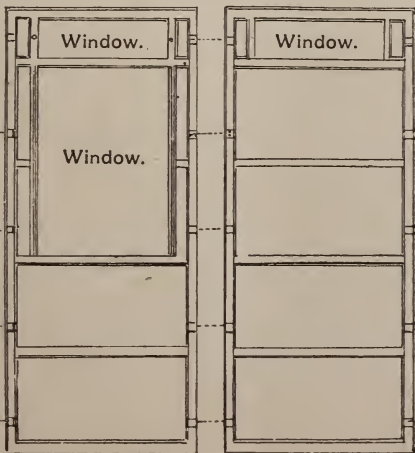
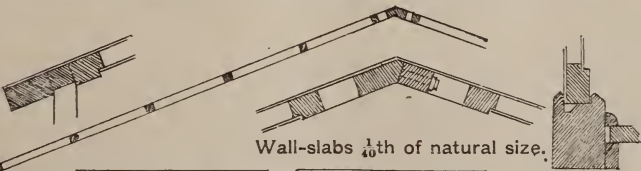


Ground Plan.



0
1
2
3
4
5
6
7
8
9 Metres.

Wall-slabs $\frac{1}{10}$ th of natural size.



Section showing system of bolting appliance for roof, etc.

Portable Hospital (Doecker Pattern).

No one, to my knowledge, having hitherto brought this matter under notice in any extensive manner, and as I believe that we have now available what must prove an enormous advantage in the endeavor to stamp out infectious diseases, I essay to deal with the subject in as exhaustive a manner as possible.

Having had the honor to serve in the German army myself from 1874 to 1878, at Hanover, in the Horse Artillery, all matters concerning that great organization have ever since possessed for me the greatest interest. Moreover, during my service as medical officer to the Victorian military forces, ambulance matters engrossed my attention constantly. When I therefore saw the announcement in a German medical print of a book entitled "Die transportable Lazareth-Baracke," edited by the great Von Langenbeck, published some four years ago, I at once ordered a copy, and this paper and the accompanying plans and illustrations are based upon the inspirations derived from a close study of its subject-matter. To say less than this by way of acknowledgment would be but a poor tribute to the memory of the great departed military surgeon; and Americans who have visited Germany and who have received from him, in his quiet and unobtrusive way, that welcome and courtesy which is so characteristic of German scientists in their bearing towards foreign visitors, are not likely to resent a passing reference to the genius of the great-hearted man.

"Die transportable Lazareth-Baracke" is a report upon the results of two international competitions, held under the auspices of the Geneva Red Cross Society, to determine the winners of two prizes offered by the late Empress Augusta, for (*a*) the best form of portable field hospital for use in the third line in warfare, and (*b*) for the best equipment of such a hospital. The competitions were held at Antwerp and Berlin (the latter in 1888) respectively, and resulted in the award being made to the Doecker pattern hospital for the Antwerp exhibition, and to the equipment displayed in the same hospital afterwards at Berlin. This hospital and equipment was then at once adopted by the German War Department as its standard, and its stock of hospitals was made available to civil authorities throughout the land for use in epidemics, as much to test its reliability as to check the ravages of infectious diseases. In no respect has the Doecker Hospital failed to justify the award of the international commission that made it, and almost every day makes it plainer that in it we have the solution of the infectious-diseases difficulty once and for all.

The conditions laid down by the commission to be fulfilled by the competing hospitals were complied with *in toto* by the Doecker pattern alone. With regard to the equipment, the commission was placed in a more difficult position by the appearance upon the scene of Surgeon-Major Warton's "tortoise" field hospital, an *ambulance volante* of the highest order, which was so complete and whose merits were of such a deserving character, that, although its utility in dealing with infectious diseases was not so apparent, the commission could not overlook its importance as a war hospital for an advance corps in actual warfare, and therefore divided the prize equally between the English and German competitors.

I must, however, leave the fascinating subject of Surgeon-Major Warton's tortoise equipment for the present, as it could never be used in connection with the subject I have at heart. Infectious diseases are not for treatment under canvas, the material of which the tortoise tent is composed, unless one is prepared to burn the canvas when the epidemic is stamped out, or something is invented to render it fire-proof and germ-resisting, or capable of disinfection by germicides. And whilst canvas in hot weather is a fair housing for patients suffering from infectious disease, it is expensive; you must have a fly for summer use in countries like Australia, and a flooring of some kind. The life of a canvas hospital is that of a butterfly; for when you have used it once, it is done for. By way of illustration: When I was on the medical staff at the Alfred Hospital in Melbourne, Victoria, typhoid was very prevalent, and the board of health, with our co-operation, erected a canvas and wood fever-camp in our grounds to provide for the extra strain upon our hospital resources, which were insufficient to meet the demands for beds. Cases got well like magic; the death-rate was low. The season was summer. All through the winter these erections remained on the spot, exposed to all the changes of the weather. When the succeeding summer brought its quota of typhoid patients with it, it was found that the cases did not do so well in the tent as heretofore, and the mortality increased. The third summer the tents had to be abandoned to their fate, as they could not be rendered aseptic by any process then known to science,—except, perhaps, fire. And, as no funds were available for their removal or disinfection, the poor old tents had to hold their own until wind and rain had gradually disintegrated them, and they resembled the tattered gum-trees

beneath which they stood, their rags fluttering in the sad winds, like the gum-trees' strips of melancholy bark, for many a long winter's day.

Now, what have we in the Doecker Hospital? A building composed of material that is germ-proof, fire-proof, and capable of disinfection, *ad infinitum*, by chemicals. A building that is cool in summer and warm in winter; that is portable and capable of being put up or taken down by a few men in a few hours; capable of being carried by railway, wagon, or pack-horses, and which will provide twenty beds in winter or eighteen beds in summer time, at a moment's notice. It carries within itself all modern hospital requirements, and when erected can rely upon its own resources, even if no other habitations are at hand. If an epidemic breaks out anywhere on the American continent, all you have to do is to wire to headquarters for one, two, or more hospitals,



Portable Hospital (Doecker's pattern).

which on arrival are unpacked and erected at once. Fill them with patients as required, and when your epidemic is stifled, take them down again, disinfect and repack them, and return to headquarters.

The life of such a hospital is an unknown quantity; *cæteris paribus*, it might last for twenty years. If, on the other hand, you want to erect one permanently, the matter is simple enough. Level your site, asphalt it if you like, and drain well; then erect your hospital and put a fence around it. It is storm-proof and will resist a tornado; it is more water-proof than a brick house, and if any moisture should appear, simply wipe the walls down with a dry, aseptic cloth. Can anything be more simple?

It is, we will say, required to use our model in actual warfare. The army corps moves into the field with its usual equipment of

medical aid for the first line, and ambulance and dressing stations for the second line, whilst in a well-sheltered position not too far from the dressing-station the P. M. O. erects his third-line hospital, independent of all his surroundings, as soon as an action has commenced. In a short space of time the patients from the second line will be pouring in; if there is insufficient accommodation in the one pavilion, up goes another very quickly, until all the wounded are safely housed or the action is over. When the corps advances again, the wounded in their third-line hospitals are left behind, snug and comfortable, in charge of the staff detailed for such duty; and fresh third-liners are erected as soon as the troops go into action once more. As soon as the hospitals in the rear are depleted of their patients, either by sending them on to their corps or to the base to be invalided, the attendants take down and disinfect the whole hospital, piece by piece, repack it in the boxes that have formed the floor while in use, and send it forward again with as little delay as possible.

Thus our wounded in future will be quite independent of the inhabitants of the countries through which an army must pass on its way to the front; it will no longer be necessary to utilize churches, school-houses, barns, convents, etc., which used to be so many charnel-houses, the remembrance of the scenes occurring therein,—a hideous nightmare will alone remain from henceforth. In the Franco-German war more soldiers were disabled by the infectious diseases than were wounded in action; it was impossible to prevent these diseases from being conveyed to the inhabitants, owing to want of isolation hospitals, or even of hospitals, properly so called, for the third line at all, and the resulting complications were so terrible that the humanity of Europe was stirred to its depths. This danger has now been overcome by the Doecker pattern hospital, which is the direct outcome of the agitation started in favor of improving the condition of the wounded, as well as for the protection of the inhabitants themselves, after the Russo-Turkish war had once more called attention to the existing fearful state of affairs.

Foremost in the line of agitators was the Empress Augusta herself, who, as aforesaid, offered a large money price for international competition. The results are truly brilliant: we have not only the Doecker pattern as the best all-around hospital for our requirements in peace or war, but we have Surgeon-Major War-ton's flying ambulance, which could follow up the rapid flying col-

umns of a Gourko or a Skobeleff with ease, and be of the greatest possible service to a Sheridan or a Roberts on the march to Kandahar. We have, too, reliable data concerning the successful use of huts, hospitals, and stables, erected for the suffering men and beasts during the occupation of Herzegovina and Bosnia by Austria not many years ago; these were after the model exhibited by Tollet at Antwerp, and, whilst not gaining the prize, will again be found useful in future expeditions of a similar kind. The Tollet system is, I believe, pretty well known; it well fulfils certain indications, but cannot be further considered here. The hospital of Dr. zur Nieden, however, seems to be so admirably adapted for use in hot climates, with its removable walls, that I append two illustrations (see Frontispiece) and a ground plan which will show its advantages. It is also somewhat cheaper than the Doecker hospital, the walls of which are of a species of felt, which is manufactured by a secret process. Although not a prize-taker, zur Nieden's hospital would be very useful in the treatment of epidemics, whilst the more perfect Doecker fulfils other indications essential in a field hospital.

As will be seen by the ground plan of the Doecker system,—which also bears the names of Christoph and Mumack, Copenhagen, they being the actual prize-takers in the equipment competition, whilst their display was made in a Doecker hospital,—the pavilions can be constructed of any size desired, with closets and rooms for the surgeon and nurses, and all other necessary adjuncts of a complete hospital. The ordinary measurements are, for a hospital of twenty beds: Length, 50 feet; height, $6\frac{1}{2}$ to $7\frac{1}{2}$ feet; width, $16\frac{1}{2}$ feet; air space 170 cubic metres. The building cost about 150 pounds at Berlin.

There remains little more to be said in favor of portable hospitals for use in dealing with epidemics. Nations not imminently in danger of war, perhaps, need not lay in a stock of third-line hospitals at once. Yet since the same building will be suitable alike for use in peace or war, no nation will in future have any excuse to offer if caught by an epidemic and found wanting in hospital accommodation. Human nature likes to do its charity on a grandiose scale, and to gaze upon a magnificent, many-storied hospital building as a testimony to its public benevolence. But human nature will have to come down to hard, practical facts taught through bacteriology and practical acquaintance with hospital gangrene, pyæmia, erysipelas, and wound-fever, not to speak


of puerperal septicæmia and all its horrors. Infectious diseases must be isolated and dispersed, not concentrated in buildings of more than one story in height; the life-history of buildings used in the treatment of such diseases should be short; they serve their purpose for a time,—giving place to others rising phoenix-like from their ashes. But, “for the soldier,” says Von Langenbeck, “the best that you can give him is not good enough.” Impartial judges will agree with me that the Doecker hospital does not leave him much to desire.

If it is once realized that we can combat infectious diseases successfully with the aid of small, isolated hospitals, much will have been accomplished; the frequency with which, of late, pavilions have been constructed in lieu of two-storied wards shows that the teachings of Lister, Koch, and Pasteur are not altogether ignored; still, more is needed. Cholera should not be able to devastate us periodically, as it has done so often.¹

Sanitation of Dwellings, Public Buildings, and Thoroughfares.⁹

BY J. H. DAVISSON, M.D.,

Of Los Angeles, Member of State Board of Health, of California.

HERE is no department of sanitary medicine which concerns the masses as does domestic sanitation and sanitation of public buildings and thoroughfares. Their hygiene is not a subject of interest at intervals, like many other departments of our art, but always a live issue, and of paramount importance, because it involves the health and life of every individual at all times and places.

Household sanitation properly includes not only a consideration of the house and all that is contained in it, but its environs as well. It is not the object of this paper to enter into tedious

¹ It will hardly be credited that in the fair city of Sydney to-day there is being finished a building several stories high, the Sydney Infirmary, which was commenced some fifteen years ago on plans that are now obsolete. The naked foundations and ground floor have lain exposed to wind, rain, and sun for these many years, and now an intelligent government, at this *fin de siècle*, actually rears a brick and sandstone building upon them at an enormous outlay. So much for our national motto, “Advance, Australia!”

² Read before the California State Sanitary Convention.

details of location and construction, but to treat of the divisions of this subject in a restricted sense, to avoid a paper of too great length, dealing more particularly with sanitation of the interior.

All buildings, both public and private, should be located on high and dry ground, and with reference to the air currents or wind and sunshine. Residences and public buildings should be constructed, where admissible, upon the detached or cottage plan rather than in rows and palatial, and upon foundations suitably prepared of cement or grout (except in California, where simply brick answers for small buildings), with proper elevation and thorough ventilation under the structure. One-story cottages properly planned and elevated, with good attics, may be constituted comfortable and hygienic residences; but in the revival of the colonial style of architecture—with a few modifications—the two-story residence is both artistic and convenient, economical and sanitary, and well adapted to any climatic conditions. Frame or wooden houses are best for our climate, while brick is most satisfactory in cold climates. The Spanish idea of *palois*, or large courts instead of dark rooms, in large buildings for every purpose, is to be commended, and our advanced civilization should discountenance piling brick, stone, iron, and mortar, or other building material, heavenward in the unsanitary effort to build domicile upon domicile and office upon office, when nature has provided so much territory. Indeed, the tall tower, monument, or church spire is but little in advance of the pyramids, and might, without irreverence, be displaced with something new, rational, sensible, and sanitary in our progressive age of reason. The tall church spires are sometimes more pleasing to the senses than many of their adornments. Imagine the spectacle of the angel Gabriel empaied upon a church spire, blowing his last trump! Such was the adornment of the First Presbyterian Church of the city of Los Angeles, until years of ridicule caused it to be displaced, a few years ago, by a globe as an emblem.

Every room, both public and private, should be large and well arranged for sunlight, heat, and ventilation. All plumbing should be done with reference to sanitary results, and, where possible, should be open for constant inspection, and all fixtures properly trapped and vented to avoid siphonage. McClellan's automatic venting, though a little expensive, is probably the best for security against sewer-gas. All fixtures and plumbing in every building should be in constant use, or be frequently flushed,

to prevent the seal of the traps being broken by evaporation, which soon occurs in our dry and airy climate. This may occur to summer residences and hotels at the sea-shore or in the mountains, and may occur to school-houses during vacation. All water-closets should be supplied with modern automatic flush-tanks, properly connected to avoid siphonage or other accidents; and with plenty of water, care in construction, and good plumbing, these modern, odorless, and consequently sanitary closets can be easily kept in order, and may be placed in any building with comparative safety.

Every house, private or public, should be properly heated, lighted, and well ventilated. It is a mistake, in California, or in any other similarly mild climate, to plan and construct houses, residences, or other buildings, without providing suitable heating apparatus. Although for the greater part of the year no artificial heat is required for health and comfort, still, in marine climates and near mountain regions the meteorological conditions are such as to require artificial heat for both health and comfort for a period of two or three months during the year. It is to be regretted that many residences and school-houses, and other public buildings, have been constructed with an utter disregard for heating,—not being supplied with grates, furnaces, stoves, or steam or hot-water heaters, and without flues or chimneys. In consequence of these gross defects in construction, and for other reasons,—false economy,—many resort to the vilest of all methods of heating, or attempting to heat, with kerosene lamps and stoves, and, as a result, such chambers are poorly heated, and filled with the unsavory fumes of kerosene, and they burn out the life-giving oxygen and replace it with noxious carbon dioxide. This condition of things is deplorable, though quite universal and most unsanitary. The statement has been often made that architects have not kept pace with the sanitarian, a statement which is oftentimes provoked by the false notions of economy of the householder rather than lack of knowledge on the part of the architect and builder. Gas-stoves and grates, properly constructed, are less objectionable on the score of accidents than kerosene stoves or lamps, and are more satisfactory for heating in our climate, but they are not as sanitary as open grates or hot-air furnaces with pure air intakes. Steam or hot water is very satisfactory for large buildings, and especially in cold climates where much heat is required with constancy.

The question of properly heating thoroughfares is even more

difficult to handle than that just considered, and as yet no plan in use is entirely satisfactory. The trouble is not altogether one of heating, but also of ventilation. Several years ago my friend, Dr. Reed, of Mansfield, Ohio, made extensive observations with reference to heating coaches and sleeping cars on railway trains, and found varying temperatures at short intervals, owing to circumstances connected with running, stopping, etc., and after investigating the then methods of steam-heating, he concluded that no method in use was satisfactory, and that no advance in that direction had been made in years.

Heating of steamships offers much less difficulty, and we will pass it with this statement. Heating and ventilation are separated in theory but associated in practice. However correct this may be, provision for proper ventilation or pure air currents to displace dead or impregnated air should be made in all buildings, regardless of heating and independent of it. For large buildings and institutions the fan system of ventilation is now much in vogue, but its principal objection is the cost of maintaining it.

The water-supply of every building, railway coach, sleeping car, or steamship is of the greatest importance. It is needless to say that the source should, if possible, be free from any suspicion of contamination, and the supply abundant and pure. In view of the possibility of pollution and the fact that there are so many hidden sources of infection, all drinking water should be recently filtered or sterilized by boiling. The Pasteur germ-proof or porcelain filter is probably the best, and can be and should be applied to the filtration of drinking water in dwellings, public buildings, and thoroughfares. It is simple in construction, easily attached to fixtures, easily cleansed, and not expensive. When there is danger of pollution or a suspicion of pathogenic germs, and a suitable filter is not in use, the water should be boiled, as boiling destroys all pathogenic germs in ten minutes. (Sternberg.) If boiling does render drinking water rather unsavory, it has the advantages of being effectual in the face of danger from infection, and it is within the reach of the most impecunious. Next to the air we breathe, water is probably the most important element in nature, and it should not only be pure but abundant. The British War Department allows fifteen gallons of water daily to each soldier, and this quantity contemplates a sponge bath. Cities and towns require more, while American cities allow about fifty gallons daily per capita, and some even more. (Rohe's "Hygiene.")

Since ice has gone into such general use, its purity should always be tested by competent inspection before it goes to the consumer. If natural ice, its source should be guarded to prevent pollution, as freezing does not destroy pathogenic germs, notably the bacillus of Eberth, which is often found in natural ice. In the manufacture of ice all water should be distilled prior to freezing. While a member of the City Board of Health of Los Angeles, a few years ago, I introduced a resolution directing an ordinance which should require all artificial ice to be made from distilled water. A storm of indignation by certain ice factories followed, and I was accused of complicity with a few factories which distilled the water prior to freezing. But the resolution, which seemed at first so objectionable to certain factories, had the desired effect, as it corrected many errors and much carelessness in all the details of manufacture, and had the effect of calling the attention of consumers to the necessity of knowing the source and quality of their ice supply.

Although not properly within the purview of this paper, you will permit me to say that the average American eats, as he does everything else, in a hurry, and does not give that care to the selection and preparation of food products that their importance demands. Man being omnivorous, requires a greater variety of foods than other animals, and also requires that it shall be properly prepared or cooked prior to ingestion; and most foods which require cooking should be either boiled, baked, roasted, broiled, or steamed; but few should be fried. On coming to California most every one learns that California fruits are healthful, and acting upon that fact they eat to excess of oranges, grapes, figs, pears, peaches, apricots, strawberries, olives, etc., forgetting their capacity for fruits, and suffer from digestive disturbances in consequence. Many in like manner learn that our California wines are healthful, and drink them regardless of indications, or, rather, contra-indications. Alcoholics are not essentially foods, and can be dispensed with in most cases, except where indicated for certain chronic ailments of nutrition, and their judicious use in health as table beverages. Though alcoholics have valuable therapeutic indications, as in severe fevers, like typhoid, typhus, pneumonia, etc., to arrest retrograde changes due to the temperature,—than which there is no more potent agency,—yet most persons in health are better without them.

Perhaps the most unsanitary features of dwellings, public

buildings, and thoroughfares to-day are the furnishings,—the carpets, curtains, draperies, and upholstery, to say nothing of the odious folding-beds in use in private and public houses. With tuberculosis unrestricted, heavy woollen carpets, rugs, curtains, and upholstery, as found in most all residences, offices, public buildings, elevators, and such thoroughfares as sleeping cars and steamships, are hot-beds of infection, and furnish conditions favorable for the reception, retention, and spread of tuberculosis, diphtheria, scarlet fever, and all diseases due to microbes and infections. These filthy woollens, chenilles, and plushes will retain the bacillus tuberculosis in a potential condition for two and one-half months, or even longer, when hidden in these fabrics from the sunlight, as they are usually located in apartments. Tuberculous patients scatter the bacilli in the streets, railway coaches, sleepers, steamships, elevators, in fact, everywhere, and the sputum dries and becomes pulverized and floats in the air along with particles of dust, and the common mode of infection is the inhalation of these bacilli by the weak and delicate. The bacilli, also floating about in the air-currents, lodge in drinking water and fall upon articles of food which do not require cooking, and are swallowed, which is the next most common mode of infection or spread of the disease. The same is true, in less degree, of other pathogenic microbes. How often is infection transported from town to town, and from State to State, and from continent to continent by means of the filthy carpets, plushes, and hangings of sleeping cars and steamships! Welcome the day when sanitary science or fashion, which plays so important a part in our sociology, shall put an end to all these unsanitary furnishings and suggest something better in their stead. The genius of fashion that suggested the painted and inlaid floors instead of carpets, and wooden and leather furniture, with now and then iron or brass, instead of so much upholstery, made long strides in the right direction; but, unfortunately, these hygienic, rational, and beautiful finishings and decorations have not become universal, though there is yet hope for these beneficent innovations. Inlaid or painted floors, linoleums properly treated, with movable rugs of light materials, which can be easily cleansed, constitute the most sanitary finishings and furnishings at our command for all buildings and thoroughfares.

The restriction of infection by police regulations or quarantine is not absolute in practice. The history of every epidemic of

cholera has proven the correctness of this statement, as with other germ-producing diseases; hence, we can only lessen the chances of infection by doing away with elements favorable for inhabitation and transportation.

The question of restriction of tuberculosis by restraint or relative quarantine, from the nature and circumstances of development, confronts us with greater difficulties than all other infectious or preventable diseases combined, and from its prevalence and fatality it heads the list in importance. To-day every thoroughfare, elevator, public building, and many of our residences are filled with the fatal bacillus tuberculosis, which find lodgement in the unsanitary furnishings above mentioned. If we cannot quarantine the bacillus, we can render it homeless, in a measure, by substituting hygienic decorations and furnishings.

Cranberg experimented with many materials for removing the germs of infection from painted floors, walls, carpets, furniture, etc., and gave the preference to moist sponges; while others, including the Philadelphia Board of Health, recommended fresh bread. Many cities in France make obligatory a disinfection after death from tuberculosis, and the Philadelphia Board of Health, March 6, declared consumption infectious, and recommended disinfection after death or removal. The plan in many German public institutions of supplying tuberculous patients with cuspidors containing a solution of bichloride of mercury (1 to 700), which should be acid and 1 to 500, and compelling patients to use them, should not be considered a hardship, and can be applied to buildings and thoroughfares.

The analysis of mortuary statistics in Massachusetts since the establishment of the Massachusetts State Board of Health, in 1870, by J. F. Allyne Adams, is most interesting, but conclusions are not always up to expectations. He concludes that since 1870 the death-rate is practically unchanged by sanitation. Though consumption has declined, and pneumonia, bronchitis, cancer, diseases of the brain, heart, and kidneys (diseases which are not preventable) have increased, the diseases of childhood, which include most preventable diseases, have been reduced 30 per cent. by sanitation. (Wyman and Banks, "Annual," 1893.)

The desire to cover the important points of this paper, together with the fact that the hygiene of residences can be applied with little variation to public buildings and thoroughfares in the main, led me to select so comprehensive a title, believing that the

repetition of hygienic facts by sanitarians, and their enunciation and publication by boards of health, are the best means of educating the masses and disseminating correct ideas of sanitation.

Hay Fever and the White Mountains.¹

BY ERNEST B. SANGREE, A.M., M.D.,

Philadelphia,

Director of the Histological Laboratory of the Medico-Chirurgical College.



REQUENTLY, in the course of treating many obstinate diseased conditions, physicians desire to try the effect of a change of air and climate for their patients, and the first question from the patient usually is, "Where shall I go?" The "Eminent Practitioner," in one of the medical fairy tales, calmly directs the indigent mother to take her sick child to Carlsbad!

In suggesting the change, the physician must take into consideration not only the climatic characteristics of the vicinity thought of, but also in many cases the size of his patient's pocket-book. From this it follows that the doctor should have an intimate knowledge of the place himself, in order confidently to recommend it to one who depends on his judgment. As it is physically impossible to be acquainted personally with every noted locality, we must generally depend on the knowledge of others. Unfortunately, many observers write in too general terms about the regions they have visited, not giving that specific knowledge which we should have ourselves before advising others with regard to a certain section.

At this season of the year the provoking and distressing disease—hay fever—makes itself obnoxious to its many victims, and almost equally so to the man who tries to modify or cure it. For those who can afford the outing, there is generally an annual hegira to some region which experience has found to lessen the attack or to deliver one from it entirely. One of those spots, justly celebrated, is that of the White Mountains, New Hampshire. Having just returned from a three weeks' sojourn there, I

¹ From the *American Therapist*, September, 1894.

thought it advisable to write a short article, endeavoring to describe the different localities in such a manner that another physician could use the information, if he wished to direct a patient there, about as satisfactorily as if he had been over the ground himself.

Luckily, I am not one of the sufferers ; but while there I met and talked with a large number of the unfortunate. I found that in almost every case the attack was either held in abeyance, if the patient came there before its onset, or was greatly ameliorated or entirely removed upon his arrival. One facetious gentleman moved my sympathies by telling me that he had positively to leave before the period of banishment was properly over, and that though he now felt happy as a lark in the possession of a set of nasal cavities of which any one might be proud, he knew that about the time he struck Concord, N. H., on his way to Boston, he would be waked up by dreaming that the Brownies were trying to blow his head open with dynamite.

As a resort for hay-fever sufferers, then, I should consider it quite a safe place to recommend a patient to visit.

Now, with regard to the different portions of the region, and the financial aspects of the question. Many, no doubt, are deterred from going to the White Mountains through fear of fancy charges. The fact is, however, that once there, the expenses need be no greater than those of any summer resort five or fifty miles out of the city. I put myself to some trouble to make this certain. The main expense is the ticket. One can purchase a round-trip ticket from Philadelphia to one of the several points up there for from eighteen to twenty-one dollars.

Suppose the ticket has been bought to Fabyan's, generally assumed to be the central point. From there one can go to the Fabyan House, just at the station, to the Mt. Pleasant House, three-fourths of a mile distant to the east, or to the White Mountain House, one mile distant to the west, in both cases by free conveyance ; or take the train to the Crawford House, four miles distant in one direction, or to the Twin Mountain House, the same distance in the opposite direction.

Roughly speaking, the Fabyan, Crawford, and Twin Mountain Houses charge about the same prices, say, from \$15 to \$25 for each person occupying a single room, and from \$25 to \$40 for two in a room. They are all first-class hotels, and beautifully situated.

The Mt. Pleasant House charges are not so high, and those of the White Mountain House much less. The latter is an old hotel, built, I think, in 1845, but kept in a very satisfactory manner, with good food and accommodations. The location of the house is excellent for sight-seeing, as it is only seven miles from the base of Mt. Washington, and within easy walking or driving distance of a number of interesting points. The rates are \$2.50 per day, or \$10.50 per week for one person, and from \$7 to \$10 per week each for two in a room.

To one who is financially easy, I should recommend the Crawford or Twin Mountain House for about two weeks, and then a visit to Bethlehem or Maplewood. To others not so situated I should suggest the same length of time at the White Mountain House, and then a change to Bethlehem. This latter place is situated some 200 feet higher than the other points described, which have an altitude of from 1600 to 1700 feet, and its situation, commanding an open and extensive view, is delightful.

Bethlehem is about twelve miles from Fabyan's, and is the principal summer resort of the White Mountains. The place contains a large number of hotels and boarding-houses, with prices to suit any one's pocket-book, all the way from \$6 to \$30 per week. The Sinclair House, at Bethlehem, and the Maplewood, about one mile distant, are the largest and most expensive hotels; but there are a number of others with prices more moderate, and accommodations all that could be desired. Probably the best known of these is the Turner House, a hotel holding about 150 guests. The expenses here would be about \$12 per week for single rooms, and from \$18 to \$20 for two persons in a room.

Eight miles distant from Bethlehem, in the heart of the mountain, and some 200 feet higher, is situated the Profile House, a well-kept hotel of the same grade as the Sinclair and Maplewood and other large houses mentioned. A few hundred yards distant from it is a high peak, on the summit of which is outlined in a large projecting rock an almost perfect human profile, while at the base lies a beautiful little lake.

Besides those already enumerated there are a number of other large and medium-sized hotels situated at Franconia, Littleton, Sugar Loaf Mountain, at the Flume, North Conway, and other points, and innumerable boarding-houses are scattered all through the region.

It would generally be more satisfactory to write beforehand

engaging rooms, so as to be certain of some place upon one's arrival; and afterwards, in a day or two, one could easily look about and make a change if desired. But even if no previous arrangements had been made, there would be no difficulty in finding a place perfectly satisfactory in any of the localities I have mentioned.

The weather while I was in the White Mountains, during the last three weeks in August, was delightful; some of the days, indeed, too cool, and a fire often agreeable in the evening, while Mt. Washington's lofty top, 6300 feet above sea-level, during the third week in August, was capped with snow.

Report of the Section on Hygiene of the British Medical Association.¹

ADDRESS IN PUBLIC MEDICINE.



SIR CHARLES A. CAMERON delivered the address in public medicine. He said they might claim that medical men stood pre-eminent among those who devised means for prolonging life and lessening sickness. They were the first to show that pure water was indispensable to health; that the efficient drainage of houses and of towns was a prime requisite to the maintenance of the health of communities; that overcrowding spread disease, if it did not develop it, and that the high mortality associated with many industrial occupations might be lessened by the adoption of certain precautions. The lives saved by the adoption of Jenner's sublime discovery of vaccination amounted to millions. In the government of modern communities the medical man played, even from a public health point of view, a very subordinate part, and yet there were many medical men eminently fitted, by their culture, experience, and ability, to hold the office of Minister of Public Health, ay, even with a seat in the cabinet.

MORTALITY RATES IN TOWN AND COUNTRY.

In 1893 the mortality rate in the towns was 5.7 per 1000 in excess of that in the rest of the country. The difference between

¹ From the Medical Record.

the rural rate and that in some of the towns was appalling. Why had one British town twice as high a mortality as another, and why was the average duration of life so much greater in rural districts than in the towns? The causes were no doubt highly complex, and many of them were local. Among the poor in all towns birth- and death-rates stood highest. Their greater fecundity and high marriage-rates compensated for their enormous mortality. The poorer a man was the more likely was he to marry. It was a remarkable but undeniable fact that a man's desire for matrimony was in the inverse proportion to his ability to maintain a family. Figures showed the appalling mortality of the children of the poor. If the deaths of children under five years of age were excluded, there would only be a difference of about 2 per 1000 between the town and country death-rates. A large proportion of the lower classes in the towns was underfed, insufficiently clothed, and badly lodged. These unfavorable conditions told most severely upon the very young. As higher death-rates prevailed among the poor than obtained in the case of the well-to-do classes, an undue proportion of very poor people in a town necessarily caused a higher death-rate than where the poor were comparatively few. This would be the case even where the general hygienic conditions of both towns were much alike. It might be considered that the comparative poverty of towns might be to some extent determined by ascertaining the proportion of the population who were domestic servants. On the whole, they found that in the towns where the domestic servants were very numerous the death rates were low. The percentage of tenements which consisted each of a single room might, one would suppose, offer an indication of the poverty of a town. He found, however, the most extraordinary differences in towns, salubrious and otherwise, as regarded one-room tenements. In the Scotch towns one-roomed houses were even more common than in England.

In Dublin one-third of the families lived in single rooms. The high death-rate which characterized the denizens of single-room dwellings was largely the result of the miserable conditions of the people themselves, apart from the state of their dwellings. If they exchanged their one-roomed dwellings for four-room tenements, they would still have a high death-rate by reason of their poverty and its concomitant evils, and, he feared, from their intemperance. It was to be regretted that the local authorities still allowed such houses to be built. In Dublin they could not be

erected, a by-law directly prohibiting their construction. In Dublin, 2700 houses had been detenanted and closed,—about 1000 of them never to be reopened, without any compensation to the owners. If a municipality were wealthy it could do no better work than providing good dwellings for the artisans and laborers ; but if its means were limited, it should look only to the wants of the laboring and still poorer classes. It was in the dwellings of the very lowest classes that the seeds of infective disease were nursed as if in a hot-bed. These places were pest-spots, and any amelioration of their condition must be a gain to society at large. The corporation of Dublin had been able to provide two-room tenements with separate sanitary accommodation of the most modern style, at 2s. per week, and without loss to the city treasury.

WATER-SUPPLY.

The disuse of town wells and the filtration of public water-supplies had done much to lessen the urban mortality. The value of filtration through mere sand had until recently been underestimated ; but the researches of chemists and bacteriologists had shown that filtration through sand and gravel can be made almost as perfect as through charcoal. The great importance of water-filtration was painfully demonstrated during the last epidemic of cholera at Hamburg. They had not yet determined, in relation to chemical analysis, the line which divided a bad from a good water, nor did he believe that such a line could be drawn. One that contained very little organic matter might be dangerous to drink, while, on the contrary, water with a large amount of organic matter had been drunk with impunity for years. The number of micro-organisms in water was regarded by most bacteriologists as a measure of its purity, regardless of its chemical composition. The epidemic of enteric fever in the Sees Valley in 1890 and 1891, investigated by Dr. Barry, of the Local Government Board, had been held to prove conclusively that this disease was propagated by water. Dr. Barry's conclusions had, of course, been questioned and controverted.

SEWER-AIR.

The results of recent investigations in reference to the composition of sewer-air showed that it was superior, bacteriologically at least, to ordinary air. They could easily understand that

in the case of well-constructed and constantly flushed sewers, the air in them would not differ from ordinary atmospheric air. It was the emanations from stagnant sewage in ill-kept sewers that were to be dreaded. The ventilating openings in the streets were generally objected to by those who lived opposite to them. Bristol was, perhaps, the only one of the large towns in which the sewers remained unventilated. As typhoid fever was asserted the most likely to be produced by sewer emanations, Bristol ought to have more than an average amount of disease, if the sewer ventilation theorists were correct. Statistics of the mean death-rate from enteric fever, in the period 1887 to 1891, showed that five towns had smaller rates than Bristol, and forty-four had higher. If Bristol had made a mistake in not ventilating its sewers, it had not apparently paid any penalty, for in the period 1881 to 1890 only one of the large towns had a lower zymotic death-rate. He should feel disposed to adopt the Bristol plan, were it not that there might be some difficulty, in some towns at least, in cleansing the sewers. Typhoid fever was not so prevalent in these countries or on the continent as it formerly was, but in some towns typhoid fever had not declined, and in a few it had increased. There was a very general belief that this disease was almost wholly propagated through the media of water, food, and sewer-air; but he believed that the greater number of cases arose from the *materies morbi* of the disease being absorbed from the air. Up to the present, pathogenic micro-organisms had not been frequently detected in the atmosphere, but neither had they been found, except rarely, in water or milk suspected to have produced disease. He believed that typhoid fever was a disease of the miasmatic class, and that it became endemic in certain localities in which the conditions of the soil were favorable to the development of the micro-organisms which caused the disease. It had been suggested that the water-logged condition of Dublin was the cause of the prevalence of typhoid fever, and that the obvious remedy was subsoil drainage. It was, however, a fact that the low-lying portion of Dublin, where there was most typhoid fever, was not damp, and that the ground-water lay low there, and that in the parts where the ground-water came much nearer to the surface there was least typhoid fever. The explanation of this was not difficult. The cold, wet clays were unfavorable to the bacillus of the disease, whereas they had better feeding ground in the loose and well-aërated gravels. It was stated

that typhoid prevailed most among the upper classes. This was not the case in Dublin.

THE FUTURE OF PREVENTIVE MEDICINE.

The domain of public medicine was steadily enlarging in every direction. Surely the time must come when the results of these researches would enable man to extirpate some or all of the diseases which even now were termed "preventable." England had been described by foreigners as the birthplace and home of sanitary science, and it surely deserved the compliment. Never before in the history of the world were 30,000,000 of people located on 50,000 square miles, as was the case with the England of to-day. Of these millions two-thirds resided in the towns, which yearly had a quarter of a million added to their teeming population. In Germany 42 per cent. of the population lived in towns containing 2000 and upward. Only every tenth Russian lived in a town. Notwithstanding the great and continuous increase in its urban population, Great Britain grew healthier and healthier from decade to decade.

It was due to Sir Charles Cameron that typhus had been so effectually grappled with in Dublin, for it was through his efforts that the insanitary dwellings which were the hot-beds of the disease had been swept away by hundreds. The same reason accounted for the failing power of the disease in Liverpool. At the same time there was the matter of the increase of diphtheria. Many causes were attributed to this, and among those which found most favor with the officials of the Local Government Board were the street ventilation of sewers, and the increased aggregation of children in schools. Alluding to the probable dispensing with vaccination, the speaker said that the opposition to this by the medical profession had been attributed to their desire to protect fees, but he prophesied that if vaccination became non-compulsory the public would require half as many again medical practitioners as existed to-day.

Burns and Their Treatment.

BY DR. HAAS.

BURNS that do not result from chemical agents are produced by the intense radiation or direct conduction of heat. It matters not whether the object concerned is solid, fluid, or even gaseous. The affected part of the body undergoes morbid changes, varying according to the degree of the temperature and the duration of the effect. There may be simple redness with or without superficial drying of the epidermis, formation of blisters, a deep destruction, or even charring of the tissues, these being the dangerous burns of the third degree. While in severe burns pain is not usually experienced until some time has elapsed, it is felt acutely at once or within a short time after the accident in the slighter burns of the first and second degree. In consequence of the withdrawal of fluid from the skin or subcutaneous tissue more or less serous, bloody liquid collects in the blisters.

The treatment of these mild burns is comparatively simple, and is based upon antiseptic principles. It is often sufficient to keep off the air; a cure is ordinarily effected within a short time and generally without the formation of scars. The deeper burns which are attended with destruction of tissues soon become covered with a yellow or black eschar, and always leave behind cicatrices.

During recent time greater attention has been directed to the eschar, and attempts have been made to connect it with the fatal termination of many burns. As a matter of fact, we are inclined to attribute the lethal results of some burns to poisoning of the system (intoxication) through the medium of the eschar.

The symptoms which not infrequently attend severe burns correspond in many respects to the appearances produced by the bacteria of putrefaction. The patient is apathetic, replying slowly to questions, and his breathing is difficult and sighing. Hiccough and vomiting with increasing restlessness are ominous symptoms. The restlessness becomes more and more marked, and the patient grows excited, talks wildly, and cries out. He is still able to reply to questions, although with difficulty, but now som-

nolence supervenes, the muscles become relaxed, and a general paralysis closes the scene. In these cases, therefore, as in poisoning by alkaloids, the stage of excitation is followed by one of paralysis, the fatal termination. The symptoms resemble, to a great extent, those produced by a ptomaine similar to muscarine. These are basic substances which are found in albuminous bodies, both of animal and vegetable character, when in a condition of decomposition through the action of putrefactive bacteria. The reason that the symptoms do not resemble completely, but only in great part with those produced by muscarine, is attributable to the fact that we are not concerned here with the effect of muscarine alone, but of a mixture of poisons of this kind.

An exact demonstration of the presence of ptomaines was first afforded by the preparation of putrefactive poisons from the scabs of burned portions of the body. But long before this physicians were acquainted with the favorable influence of the belladonna preparations upon the course of the toxic symptoms, and ordered them on empirical grounds without being able to trace the phenomena to their causes. Later rational investigation discovered in an alkaloid of belladonna, atropine, an antidote to muscarine, and this has served to explain the action of those preparations of which the one counteracts the poisonous effect of the other. This observation that atropine counteracts the poisonous effect of muscarine, or the putrefactive bacteria, has been practically utilized to an astonishingly small extent at the present day.

The formation of these ptomaines can be explained on the ground that through the action of the heat—and about 70° C. are sufficient—the tissues are destroyed, the living protoplasm being converted into the dead. Under the influence of the higher temperatures the blood-vessels dilate, a portion of the solid constituents (blood-corpuscles) is destroyed and circulates as a dead body in the tissues, producing injury by obstructing capillaries and small blood-vessels. Finally, the affected parts are exposed to the changes produced by the agency of the putrefactive bacteria whose presence in the blood and tissues has been demonstrated. A contributing effect is exerted by the eschar, which, being connected with the adjacent and still unaffected parts, cannot undergo contraction in consequence of the constant supply of fluid, and does not become detached. Under this dead, firm, and non-sensitive mass permeated with effusions from the vessels a series of processes of decomposition takes place. Putrefactive bacteria

which have escaped destruction by heat, or have gained access at a later period, begin their destructive work under the protection of the dead masses of eschar, and their propagation is aided by the abundant supply of fluid to the subjacent tissues. It is through these still quite intact tissues that the ptomaines enter the circulation and then produce the symptoms above described. These ptomaines are extremely poisonous, and even minute quantities—five milligrammes—will give rise to severe symptoms, stupor, decrease of temperature, slowing or even arrest of the heart-action.

The treatment of such severe injuries must, therefore, be directed towards preventing the formation of ptomaines. For this purpose surgical measures are required,—that is, the detachment of the eschar.

Therapeutically we endeavor to prevent putrefaction of the scab by the use of antiseptic substances, and for this purpose iodoform has proved very useful, since it exerts a demonstrable effect upon the clinical changes of the putrefactive process. As iodoform, however, is poisonous to some extent, a certain degree of caution is necessary in its application, especially to large, readily-absorbing wound surfaces. Furthermore, to obtain as rapid desiccation of the scab as possible, a strong, local withdrawal of fluid is indicated, and good results have been secured from the application of hygroscopic dusting powders.

With regard to the production of the poison which causes death in cases of burns, the above statements refer only to burns attended with the formation of an extensive eschar; but they are applicable also to burns of the second degree, where, although no destruction of tissue has occurred, necrosis of the skin frequently takes place beneath the blebs.

In all burns attended with pains the first indication is to protect the wound from the irritation of the air, which of itself alleviates suffering. Much weight has been justly attached to the relief of pains, for the reason that the increased painful nervous excitement is attended with a more marked reflex decrease of the cardiac tonus and cardiac paralysis, especially in children. It is to this fact alone that the severe symptoms following immediately the occurrence of burns can doubtless be attributed in many cases. The control of the excessive excitement of the nervous system demands great caution, especially in young persons, and a careful estimate of the existing conditions.

To exclude the air from the burned area we make use of dressings which will relieve pain and at the same time have an antiseptic action. Among these iodoform occupies the first place ; but in cases of severe burns, where the remedy must be employed for many weeks, its application, especially to extensive wound surfaces, demands the most serious consideration, on account of the risk of absorption. A good liniment is the time-honored mixture of linseed oil and lime-water, with addition of thymol which acts as an antiseptic. An ointment of bismuth and boric acid, bismuth paste and powder may be employed with advantage. Among the other analgesic remedies for the treatment of burns *aristol* deserves especial mention. Subcutaneous injections of oily solutions of this remedy have been found to exert a local analgesic effect like cocaine. If applied directly to wounds, *aristol* is equally efficient as an analgesic. The marked cicatrisant properties of this substance were especially noted by French clinicians, and since then *aristol* has occupied a prominent place among remedies for the treatment of wounds. Its ability to produce rapid cicatrization, together with its ability to relieve pain, rendered it especially suitable as an application in burns, and it has already been employed here with much success. The results are, at least, fully equal to those obtained from the use of iodoform and *aristol*, has the additional advantages of being devoid of the offensive odor of the latter and of being free from the risk of toxic effects which sometimes attend the iodoform treatment.

In cases of superficial burns, after cleaning the affected surface with carbolyzed water or pure water, the contents of the blebs are evacuated, the parts again washed with a 3-per-cent. solution of carbolic acid, and dried with gauze. *Aristol* powder is then dusted on, or a 5-per-cent. ointment of *aristol* (best prepared with lanolin) is spread in the material for covering the burned parts. Over the dressings is placed a layer of absorbent cotton, and the whole is fastened with bandages. Under the protective covering of *aristol* vigorous granulations are formed and cicatrization proceeds rapidly. This treatment is applicable only to the slighter degrees of burns, while in the severe forms extreme care must be exercised in the treatment on account of the danger of toxic effects through the putrefactive poisons, as above stated. Not until the scab has been removed or detached are antiseptic solutions or ointments indicated:

At the present time, when the ptomaines are generally recog-

nized as the cause of the symptoms produced by severe burns, it is possible to save a much higher percentage of these cases of injury than formerly. It is interesting to note that even here empiricism preceded theoretical investigations. The physicians of the past century employed belladonna preparations in severe burns, and spoke of the healing properties of the latter upon the course of symptoms, while we know at the present day that the alkaloid of belladonna, atropine, arrests the deleterious influence of the putrefactive poisons which cause these symptoms.—*Illustrierte Zeitschrift für hausliche Gesundheits- und Krankenpflege*, No. 7, 1894.

The Dietetic Treatment of Spasmodic Asthma, Bronchitis, Nasal Catarrh, and Diseases of the Respiratory Organs.¹

BY T. J. MCGILLICUDDY, A.M., M.D.

A STRICT dietary system should be carried out with care, as it is a matter of the greatest importance in the treatment. These diseases are caused and prolonged by improper food and habits and recovery can only be expected by a change in them. In the beginning of the treatment the patient should eat nothing sweet, sour, or fried. Starchy and farinaceous foods should be entirely prohibited with the exception of a small quantity of stale bread or boiled rice, until the digestive and lymph-channels are entirely free from the irritating products of fermentation. We specify the articles to be taken, but they may be modified as the discretion and judgment of the physician dictate.

There should be an interval of five or six hours between meals, and no food should be taken after the evening meal.

Breakfast.—One pint of weak, clear tea, or better, hot water with a little milk (no sugar), two lamb chops or the white breast of chicken, and two slices of dry, stale bread.

Dinner.—Two or three ounces of fresh chopped or ground beef or mutton free from fat, two or three slices of stale bread, well-boiled farina, hominy or rice, and some stewed fruit without sugar. One teaspoonful of beef peptonoids with one pint of toast-water, or Highland water and milk.

¹ From the Western Medical Reporter.

Supper.—Two or three ounces of chopped beef. Chicken may be taken instead, and two slices of dry, stale bread. If very hungry this may be somewhat increased, but be very careful not to overload the stomach, giving it more work than it can accomplish. No strong tea, coffee, or malt liquors should be taken at any meal.

Strong coffee is a frequent cause of nasal catarrh.

Drink one-half pint of hot water an hour before each meal, half an hour before retiring, and when very thirsty.

The beef should be lean and juicy and from the centre of the round. After all the fat and fibre has been removed it should be cut into small pieces and passed twice through a perfectly clean meat-chopper; or it may be scraped from the fibrous tissue with a knife or meat-scraper, or chopped on the block by the butcher. This minute subdivision by grinding or chopping makes it most digestible.

The majority of patients have bad teeth which frequently infect the food. If the meat is not thoroughly masticated, the stomach certainly cannot prepare it for absorption. It should be kept sterile by handling it with perfectly clean hands and by cleansing with boiling water every implement it touches. The pulp should now be pressed very gently into cakes from one-half to three-fourths of an inch in thickness. If they are made too thick they will be difficult to cook, and they should not be pressed too firmly together, as this renders them less digestible and palatable.

The cakes should then be carefully broiled over a clear coal fire, or over one free from smoke and blaze, and they should be turned frequently to retain the juice. If desirable, they can be seasoned with a little salt, pepper, or butter.

Another method of cooking the beef pulp is to gently simmer it with a small quantity of water upon the back of the stove for about twenty minutes; it should not be allowed to boil, as this coagulates the albumen and makes it difficult of digestion. This dish is commonly known as Scotch, or minced collops. With this meat diet a small quantity of dry, stale bread two days old should be taken. It should not exceed in bulk the amount of meat taken.

Beef-tea of the right kind, properly made, or liquid peptonoids, may be given for a short time.

After a time some vegetables can be carefully added in small

quantity. A mealy potato, or, as before mentioned, a little boiled rice, hominy or farina, sago or tapioca gruel, but our main dependence must be upon the beef. When there is a strong craving for more variety, the dietary may be extended by cautiously adding a soft-boiled egg, a nicely-broiled, tender steak, lamb, mutton, turkey, game, or chicken, French peas or string beans. The succulent vegetables, celery, lettuce, dandelion, cauliflower, and spinach are sometimes useful, as they assist in overcoming the constipation that is frequently present.

Junket prepared from sweet milk by the addition of a teaspoonful of liquid rennet, or essence of pepsin; this may be also used with blanc mange made from milk and not from corn-starch.

Eat slowly and with contentment. Bathe frequently in cold water to which a little kretol has been added. This is an excellent antiseptic, possessing soapy alkaline qualities. It refreshes and invigorates the patient.

Sewage Irrigation.¹

BY H. S. ORME, M.D.,

Of Los Angeles, Cal., Member and Ex-President Los Angeles Medical Society; Member American Medical Association, etc.



It is unnecessary to adduce to citizens of California the immense advantage of irrigation to most crops. Water, pure and simple, is such a benefit that few stop to realize that a vast amount of fertilizing matter, partly dissolved and partly held in suspension, is suffered to run to waste from all our cities and towns.

The excreta of human beings are far richer in nitrogenous constituents than those of domestic animals, from the nature of our food, and consequently they have a greater value for fertilizing. It is a poor commentary on European civilization that, except in a few instances, the white race has only recently begun to utilize substances which have contributed largely for unknown ages to sustain the dense population of despised China. It is estimated that 100 pounds of human urine are equivalent, as a fertilizer, to 1300 pounds of fresh horse-dung; yet the latter, though vastly

¹ From the Report of the California State Board of Health.

more bulky and weighty, is saved, and the former generally wasted.

The trouble in dealing with human excreta is their rapid decomposition, by which their value is destroyed. It is generally necessary to apply them to the soil within two or three days, and the only practicable way is by water-carriage. If kept moving, the time may be prolonged, so that they may flow for a distance of thirty or forty miles if necessary. Another point is, that the volume of water carrying these substances be not excessive, say not more than fifty or sixty gallons daily per capita, or the area of land within reach of a city and available for irrigation would become inadequate.

The utilizing of sewage for irrigation is not entirely new in Los Angeles, but until recently has not been thought practicable during the winter months. The past season, however, has been unusually dry (the rainfall having been only eight inches), and it has been found that the whole sewage of the city can now be disposed of in this way. Still better, the authorities are now able to charge \$5 per head (100 inches) for the sewage for irrigation purposes during the day, and \$3 for the night. It is estimated that the daily amount of sewage is fourteen heads, or 1400 inches, on the line of the outfall sewer. I might here add that this great outfall sewer to the ocean is now finished, but the laterals and house-connections with the sewerage system are not yet completed. When the latter work shall have been done, Los Angeles will have a public work of which she may justly be proud.

A recent letter from Dr. Henry J. Barnes, of the State Board of Health of Massachusetts, and one of the best authorities in America on this subject, informs me of the complete success of sewage-farming at Framingham, in that State. This is a city of about 5000 inhabitants. The system was originally intended merely for intermittent filtration, but a tentative experiment showed its adaptability to fertilizing purposes, and now the land produces magnificent crops of corn, cabbage, etc. Even the vigorous winter climate does not interfere with the operation. Such has been its success that the subsurface disposal of the sewage of a penal institution in that neighborhood has been abandoned, and it is now applied to this farm.

To make sewage irrigation a success throughout California, we must profit by the experience of other communities where this plan has been longer in operation and financial victory has been

gained. The capacity of land to dispose of sewage irrigation varies with conditions. A porous soil will receive much more than solid clayey ground. Under-drainage greatly increases this capacity; intermittent application of the liquid serves also this purpose. It may be estimated that, with varying conditions, one acre of ground will easily dispose of the excreta of 100 to 400 persons. It has been found practicable to continue this irrigation in the cold winter climates of northern Germany and Illinois, as at Dantzic and Pullman, for the flow keeps the ground from freezing. In the mild climate of Southern California it could be made practicable all winter by intermittent application and increasing the area of ground. The sewage farm at Pasadena, Cal., only in operation a short time, is a decided success, and will continue so if properly managed, showing to us what can be accomplished elsewhere is possible at home by using similar methods. Probably the topographical difficulties here are not much, if any, greater than at Edinburgh, where two men (one by day, the other by night) are employed to distribute the sewage over 400 acres, the principal crop being grass. On a field formerly barren waste the first crop of grass is gathered in the spring before vegetation has been started on neighboring ground; and the owner now receives a rental of \$125 to \$150 an acre. The irrigation system for disposing of the sewage of Paris began in 1868 on less than one acre of barren land. By 1882 this field of Gennevilliers had extended to 1275 acres devoted to sewage irrigation; and at present one-third of the sewage of Paris, amounting to 34,000,000 gallons daily, is thus disposed of, while the rental of this land is five times as much as that of neighboring land not thus treated. In consequence of this enhanced value, the government of the city has determined not to extend the system for the benefit of private owners, but has obtained a lease of other land at the rate of \$9.50 annually per acre, with the privilege of purchase at \$320 an acre.

In 1872 the German government entered on a plan of irrigation for disposing of the sewage of Berlin, which is all utilized in this way. In a sanitary point of view the city has gained by the abolition of cesspools, and the city is said to realize a net revenue of from 1 to 2½ per cent. above the fixed charges of interest on cost and operating expenses.

The sewage farm of Croydon, England, now in operation about thirty years, has increased in assessed value from £1 to £9

an acre. At Lemington, a town of 26,000 inhabitants, it is necessary to lift the sewage 132 feet before applying it to the land, and Lord Warwick pays the town \$2250 annually for delivering it on his land. The sewage farm at Pullman, Ill., produces cabbage, celery, and onions, and the superintendent reported that it paid over 6 per cent. profit in 1883 on the invested amount (\$80,000).

Analysis of water from the subsoil of the plain of Gennevilliers showed that it is entirely free from the properties of sewage, and quite suitable for drinking. As long as the soil is not waterlogged by the excess of water, no deleterious effects upon the health of the inhabitants need be feared. On the contrary, the death-rate of Croydon has diminished since the sewage farm was established, and its productiveness has increased fivefold. In the *Sanitary Record* the death-rate of Croydon is quoted at only 11.79 per cent., showing it to be the lowest of any town or city in England.

It is alleged that sewage farming is practicable only for towns of moderate population, owing to the high price of lands contiguous to large cities. The answer is: Paris has adopted this plan, which already disposes of one-third of its sewage; Berlin uses it exclusively; Florence, Milan, and Madrid have sewage farms; Edinburgh has practised the method for 200 years; Birmingham thus utilizes the sewage of its 650,000 inhabitants. Including small towns, this system has been adopted by 200 centres of population in England.

In judging this question upon its merits, we must look beyond financial results. It is more than half a sanitary matter. As long ago as 1876 the Legislature of California recognized this fact, and prohibited the pollution of streams by depositing therein dead animals or offal of any kind. It is needless to add that this law has not been strictly enforced. Even where it is practicable to discharge the sewage of cities into tide-water, the trouble is not obviated, for in time the deposit of solid matters is sure to obstruct navigation, and generally the mixture of sewage with salt water becomes extremely offensive, unless immensely diluted. It must be remembered that cities often find it expensive to dispose of sewage either in running or tidal waters without creating a nuisance, while a well-regulated sewage farm is entirely free from such objection.

The real difficulty in sewage irrigation, as in other public

works, is in administration. If any way could be devised for managing public business by the same methods of economy that are employed in private affairs, the trouble would vanish.

The indispensable condition of sanitary and financial success is to divorce the administration of the system from party politics. Experience in foreign countries has demonstrated that the value and productiveness of lands thus irrigated are immensely increased, without the use of other fertilizers; and here, where farmers and gardeners are glad to pay a fair and remunerative price for plain water, there can be no economic difficulty in organizing a company and using sewage free of cost for its own lands. The only apprehension would be that the company would ask and obtain undue advantages in its franchise, in the shape of a public bonus or other favorable terms to the detriment of private interests.

A Query about Furnace-Heated Air.

BY L. M. GATES, M.D.,

Scranton, Pa.



QUESTION which I have thought upon frequently is "whether the water-tank usually found in connection with hot-air furnaces is in accordance with hygienic principles?"

Most every furnace has a tank for holding water, the vapors of which, as the furnace heats up, are intended to mingle with the air supplied to the house. The air that comes into our houses is the same as that outside. None of the moisture is destroyed by passing through a moderately-heated furnace, nor in a superheated one, for that matter. We do not usually complain because our climate is too dry, but, on the other hand, often send our patients away in search of a drier climate. One of the inducements held out by Colorado and New Mexico is the dry climate. Of course, the air after being heated and expanded by the furnace will hold more moisture, and therefore seems drier. But is that injurious? I should like to hear an expression of opinion.

The Hygiene of Writing.¹

BY EDWARD EVERETT HALE.



BELIEVE in breakfast very thoroughly, and in having a good breakfast. Breakfast is a meal at which much time may be spent with great advantage. People are not apt to come to it too regularly, and you may profit by the intermission to read your newspaper and lecture on its contents. There's no harm in spending an hour at the table.

After breakfast do not go to work for an hour. Walk out in the garden, lie on your back on a sofa and read; in general, "loaf" for that hour, and bid the servant keep out everybody who rings the bell, and work steadily till your day's stint is done. If you have had half an hour before breakfast, you can make two hours and a half now.

This business of writing is the most exhaustive known to men. You should, therefore, steadily feed the machine with fuel. I find it a good habit to have standing on the stove a cup of warm milk, just tinged in color with coffee. In the days of my buoyant youth I said, "of the color of the cheek of a brunette in Seville." I had then never seen a brunette in Seville; but I have since, and I can testify that the description was good. Beef-tea answers as well; a bowl of chowder quite as well as either. Indeed, good clam chowder is probably the form of nourishment which most quickly and easily comes to the restoration or refreshment of the brain of man.

If this bowl of coffee, or chowder, or soup is counted as one meal, the working man who wishes to keep in order will have five meals a day, besides the morning cup of coffee, or of coffee colored with milk, which he has before breakfast. Breakfast is one; this extended lunch is another; dinner is the third, say at half-past two; tea is the fourth, at six or seven; and, what is too apt to be forgotten, a sufficient supper before bedtime is the fifth. This last may be as light as you please, but let it be sufficient, a few oysters, a slice of hot toast, clam chowder again, or a bowl of soup. Never go to bed in any danger of being hungry.

¹ From the Writer.

People are kept awake by hunger quite as much as by a bad conscience.

Remembering that sleep is the essential force with which the whole scheme starts, decline tea or coffee within the last six hours before going to bed. If the women-kind insist, you may have your milk and water at the tea-table, colored with tea, but the less the better.

Avoid all mathematics or intricate study of any sort in the last six hours. This is the stuff dreams are made of, and hot heads, and the nuisances of waking hours.

Keep your conscience clear. Remember that, because the work of life is infinite, you cannot do the whole of it in any limited period of time, and that, therefore, you may just as well leave off in one place as in another.

No work of any kind should be done in the hour after dinner. After any substantial meal, observe, you need all your vital force for the beginning of digestion. For my part, I always go to sleep after dinner and sleep for exactly an hour, if people will only stay away; and I am much more fond of the people who keep away from me at that time than I am of the people who visit me.

The Use of the Bicycle.

A lively discussion took place upon this subject at a recent meeting of the Paris Academy of Medicine. After some argument, the Academy adopted conclusions to the effect that the moderate use of the bicycle by experienced riders in no way interfered with the functions of the heart; that its rôle in sudden deaths was but of secondary importance as an occasional cause; that experience alone could show its influence in sudden death in persons suffering from heart-disease; that those affected with aortic insufficiency or non-compensatory hypertrophy should be absolutely forbidden the use of the bicycle; that violent efforts, such as trials of speed, too rapid riding, or the ascension of hills, should be regarded as dangerous; that the bicycle is not adapted to the use of elderly persons, owing to the condition of their circulation. The Academy will welcome any clinical facts throwing light upon the subject.—*La Médecine Moderne*.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

Microbes.

If a body meets a body
Coming through the rye,
Can't a body kiss a body
For fear of bacilli?—*American Analyst*.

THIS editorial has been rendered necessary because we have found ourselves in a position somewhat akin to that which has been humorously related of the late Horace Greeley.

One morning, after the *New York Tribune* had become great and famous, its distinguished founder and proprietor met on the street an irate subscriber who had taken deep offence at something that had appeared in its columns, and who angrily announced his intention of "*stopping* his paper."

A few days later (the paper having regularly appeared in the mean time) Mr. Greeley met this same gentleman and cordially thanked him for having reconsidered his vindictive determination.

"But," replied the man, "I did stop my subscription."

"Oh!" answered Mr. Greeley, "I thought you intended to stop the publication of the paper."

To apply this story to ourselves: we have lately received several communications discontinuing subscriptions to this journal because, as the complainants aver, we have been publishing too much about "microbes." One gentleman humorously tells us

that his wife has been so much frightened by these publications that it is difficult to get her to eat or drink anything, and that, since it required almost superhuman efforts for him to get this one wife, he is unwilling to run any risk of losing her, fearing lest he may not be able to get a second.

Seriously, we are fully alive to the fact that microbic publications do create alarm in the minds of many, but at the same time, in this microbial era, a journal of hygiene without frequent references to microbes would be like the play of Hamlet without the prince.

The alarm that is caused by reading of microbes is unreasoning and senseless fear that is born of a misapprehension of the true significance of the word. We must confess that in our deepest mind we ourselves have a sort of a feeling that bacteriologists are forging ahead rather too rapidly in this question of microbes, and that in time to come much that is now accepted as fact will be relegated to the domain of beautiful and captivating theory.

But that certain little vegetable bodies, all of which (for the sake of simplicity) we may include under the general term of microbes, but each of which has its own distinct name and life history: that these little bodies or organisms are the vehicles for the transportation of diseased conditions from one person and place to another, there would seem ample reason to believe. As we walk the streets of a large city we now and then encounter the police-van, the duty of which is to convey disorderly, disreputable, and morally deformed human beings from one place to another.

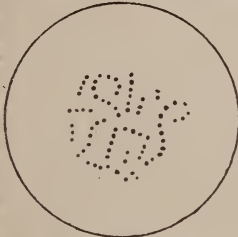
This van is the vehicle within which is to be found certain elements or units of a community whose existence is a menace to the welfare of the community at large; yet neither the knowledge of the existence of these vans nor the sight of them upon the streets ever causes panicky alarm to an honest, law-abiding citizen: though at the same time he is ever quietly taking precautions, both as an individual and as a member of the community, that the dangerous and contaminating contents of these vans shall not gain access to his home.

As we would regard the van and its contents, so also should we view the microbe and its contents. That the freight of a disease-producing microbe is dangerous there can be no question, but that there is any reason for unreasoning fear where one is properly and moderately and prudently cautious is certainly not true.

VARIOUS FORMS OF BACTERIA SUPPOSED TO CAUSE DISEASES.
(Copied from Dr. Carl Friedländer's "Manual of Microscopical Technology.")

In Figures 1 to 9 magnified 1000 diameters.

In Figure 10 magnified 600 diameters.



1. *Pyæmia*. Micrococci from pus.



2. *Consumption*. Bacilli from military tubercle. One contains spores.



3. *Typhoid fever*. Bacilli from Peyer's patch. All contain spores.



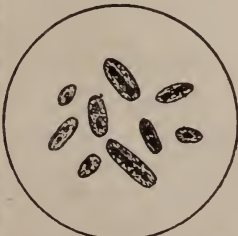
4. *Relapsing Fever*. Spirilla from the blood.



5. *Anthrax* (Malignant pustule). Bacilli from the blood.



6. Various forms of bacteria found in the saliva.



7. *Pneumonia*. Capsulated micrococci.



8. *Erysipelas*. Micrococci from the skin.



9. *Asiatic Cholera*. Comma-bacilli, joined to form threads; the S-shaped forms.

Microbes belong to a little class of organisms through the agency of which all of the phenomena of an organic life take place; they are the agencies, so to speak, without which organic life with its constant changes would be impossible, and it must be ever remembered that without the presence and constant activity of these little bodies there would be no life in nature.

The infinitely large majority of microbes are not only harmless, but, as may be inferred from what we have just said above, without them the world would be an inert mass of inorganic matter. To go back for a moment to our illustration of the city and the police-van, we would ask you to regard each individual human being as a microbe and then to remember that we would have about 1,500,000,000 of these microbes in the world. Of this large number, what proportion do you think would be ready and willing to inflict physical injury and death upon their neighbors? Do we not constantly come and go, hither and thither, without giving thought to the fact that we may be passing in the street, sitting next to in theatre, or travelling with in the railway car one or more human beings who are ready to, and capable of, doing us a physical injury; yet so comparatively insignificant is the number of dangerous human beings when compared with the sum total of humanity that no one fears to go boldly about unmindful of the smallness, yet reality, of the danger that exists. In our own mind we view microbes in this same light; we are conscious of the fact that there are infinitely countless billions of these little bodies everywhere and at all times present, but we also know that there are comparatively few of them capable of doing us any harm, and that if we are ordinarily careful the chances of our being molested by these few are very small.

The *disease-producing* microbes in their relation to the whole community of microbes might be likened to the criminal class of a community, and we should have no more fear of the one than of the other.

Have we made this matter clear? we are extremely anxious that it shall be properly understood, because, as with the human criminal, so with the microbial outlaw, there is no condition more favorable for its baneful work than foolish *fear* on the part of the individual who may be the object of attack.

A Misapprehension Concerning Consumption.

FOR the sake of lucidity and simplicity we use the word consumption as including the different diseased conditions of the lungs characterized by a destruction of the tissue thereof, and accompanied by a wasting and exhaustion of the body at large.

Of course, the professional reader is fully informed of the different varieties of destructive lung-disease, but to the lay mind this editorial will be made more clear by speaking of them all under the comprehensive term "consumption."

For some years now the editor of this journal has had the opportunity of observing the influence of sea-shore atmosphere upon consumptives, and he has been thereby led to conclude that the generally-accepted idea that sea-air is a bad air for consumptives to breathe is not based upon actual facts.

If a consensus of opinion could be had from all inland physicians, we doubt not but that the weight of opinion would be opposed to the sea-shore as a resort for those whose lungs are affected.

This is the usual teaching in our medical schools. The idea is generally held that sea-air is necessarily damp air, and the conclusion is therefore reached and unthinkingly maintained that persons with weak lungs should avoid the vicinity of "Old Ocean."

While we have the highest respect for science and tradition and the revered teachings of our distinguished professors, we have yet still more regard for the teachings of experience, and when we see numerous instances wherein consumptives have been very greatly benefited (some cases being absolutely cured), and fail to recall one single case that has been influenced unfavorably by a residence at the sea-shore, we must perforce believe that the time-honored notion in reference to the sea-shore will be "more honored in the breach than in the observance."

It is not a fact that all sea-air is *damp* air as this word is ordinarily understood, and it is a fact that it is remarkably pure air,—that is to say, that this air is singularly free from the germs of disease of any kind. That sea-air is a tonic—that is to say, that it has the property of building up and toning up the body at large—is well known, and that an influence of this kind is most essential to the diseased condition in question no one doubts. It is now the belief of those who have given most thought to the

subject, and whose experience has been the greatest, that fresh air, no matter where obtained, is what diseased lungs require, and that there is no special attribute in the air of any special locality that has any particular influence upon the diseased condition.

It is, to repeat, pure air or oxygen that is the all-necessary requisite, and it makes no difference whether this gas is inhaled in Maine or Texas, in Atlantic City or California. Of course, the air of a large city cannot be pure; it is an impossibility. Hence, large cities should be forbidden to consumptives.

An essential requisite to the inhalation of an abundance of oxygen is an equable climate that will allow an out-door life, and it is our experience that nowhere else in this country can there be found climatic conditions more favorable to out-door life than exist at many of our sea-shore resorts.

In conclusion, we would repeat that our practical experience convinces us that there is no reason why those whose lungs are weak should avoid the sea-shore, and that there is abundant evidence that they will be benefited by the conditions there found.

Feminine Folly and Professional Wealth.

THE death of a physician who leaves an estate of nearly \$500,000, money all made within the past twenty years, the bulk of it being the reward of removing from women certain organs and parts placed within their bodies by nature and nature's God, must cause the thoughtful man to pause and reflect, and ask himself why it is that woman requires, or seems to require, or thinks that she requires the aid of man to improve upon the work of nature.

It will not take any argument to convince a fair-minded reader of the Book of Genesis that Eve in the Garden of Eden did not present to view the ungraceful and unhealthy profile that is seen in Fig. 1 of our illustrations.

Much more likely, could we turn our camera back through the countless centuries that have elapsed since our original mother lived blindly in accord with the teachings of nature, would we find photographed therein an outline similar to that in Fig. 2; and at the same time we must not forget that gynæcologists (physicians who devote themselves especially to diseases of women) were unknown in the Garden of Eden.

It is a long jump from the period in which this specialty

(gynæcology) was absolutely unknown and unheard of and *unnecessary* to the period of to-day, when its practitioners are rapidly accumulating fortunes.

This period has been sufficiently long to enable the unnatural, unreasonable, and most reprehensible fashions of dress that have from time to time controlled the feminine mind, to have so modified and altered the anatomical conditions and relations of the original feminine conception as to have possibly rendered necessary the intervention of man to cause this originally divine and perfect organism to conform itself to the unnatural distortions that have been brought about by the dictates of a barbarous and senseless fashion.



FIG. 1.—Effects of corsets and tight bands on an American woman of same age.



FIG. 2.—Young woman whose "clothes were never tight."

A careful examination of the illustrations will convince, we think, any impartial person of the fact that improper methods of dress are a prime factor in the causation of many of the diseases and infirmities peculiar to women.

Certainly no one could possibly expect that a woman, with a figure such as that represented in Fig. 1, could enjoy good health herself, or could nurture, develop, and bring forth into the world progeny worthy of being called human beings; while at the same time it would be but natural to look for that perfection of health

that of itself makes life worth living in a woman with outlines such as are shown in Fig. 2.

Of course, we know full well that in a battle between fashion and common sense, the victory will always be on the side of the former, and that the majority of women will continue until the end of time to lace, bind, twist, and distort their poor bodies as fashion may decree; that they will continue in consequence thereof to suffer all kinds of deformities and infirmities, and to make gynæcologists rich and their husbands poor because of their folly; yet it is our duty to call attention to these facts in the hope that among our intelligent, thoughtful, sensible readers there may be found a few who will profit by our presentation of this character study.

Placarding Infected Houses.

THE *Philadelphia Press* of November 21 tells us that, because they have no more money for quarantine purposes, the Board of Health of that city has decided to substitute *warning cards* for *personal guards* in cases of contagious diseases. We congratulate the board upon this decision, and wonder that it was not reached long since. There can be no question but that the *moral* deterring influence of a card stating the fact that the danger of death exists in a certain house, this card calmly and without expression staring the passer-by in the face, is much more influential upon the mind of the average human being than would be the physically deterring influence of that class of humanity that would be generally employed as watchmen, and unquestionably the notification card would be cheaper than the latter.

For some reason, not yet clearly understood, most persons object to having it publicly known that any contagious disease exists in their household; seeming instinctively to recognize the fact that the existence of a contagious disease necessarily implies some fault upon the part of some one connected therewith, and, since it is obviously much easier to hide the existence of disease when the knowledge of its existence is confided to the confidence of an individual than when it is published to the world at large in the cold and unmistakable language of printer's ink, we can readily understand that placards are not, and will not be, popular until sanitary education has become much more generally popular

than it is at present, yet, as pioneers in sanitary progress, we are quite confident that placards will be not only much more economical, but also infinitely more effectual than the best possible system of personal watching.

Paskola.

“**F**IAT JUSTITIA; RUAT CÆLUM.” For the enlightenment of our antique readers, whose Latin may be rusty, we would say that this means that justice should be done to everything and everybody, no matter what may be the consequences, and it is not always that the consequences are insignificant to him who tells the truth. Some few years ago this journal undertook the task of impartially examining and fearlessly reporting upon the various articles offered for sale to the public. It was an extremely valuable and interesting work, but it was soon found that these reports were so misused and misconstrued to serve the commercial interests of those interested therein, and the editor found himself so constantly misunderstood (as is usually the case when a man starts out to tell the truth regardless of whose toes he may be treading upon), that this work of immense value was abandoned.

Among honest, thoughtful persons, at the time referred to, the journal earned the reputation of being absolutely truthful and incapable of purchase in the preparation and presentation of these reports.

They were elaborately prepared (always without any knowledge on the part of the manufacturer that his goods were being examined) and published fearlessly.

It has now been some years since these reports were discontinued, and during this time the journal has repeatedly refused to publish commendatory notices that have been asked for by advertising patrons of the journal. Since its inception the editor has always maintained that so-called “reading notices,” so common in medical journals, not only disfigure the pages of the journal itself, but do no good to the parties so advertised, since the purpose for which the notice has been published is so manifestly transparent.

Hence he has persistently refused to publish commendations of any article of the merits of which he was not personally cognizant. He has now been asked to defend paskola from what is

said to be an unjust attack upon its merits by manufacturers of rival goods.

The details of this commercial warfare we are ignorant of and care nothing about. Ever since its introduction the editor of this journal has been using paskola in his practice, and is still doing so, because he has found it to be the best and most readily assimilable flesh-producing article that has yet come to his notice. He has found it to be what he believes it is claimed to be,—namely, a predigested vegetable food, most acceptable to the most delicate stomach, and when given in connection with one of the peptones forming an ideal combination in those conditions of general exhaustion wherein the debilitated stomach seems unequal to the digestion of ordinary food.

We have only one fault to find with paskola, and this fault we do find with all predigested foods, and that is their presentation to the public for use without professional advice.

The doctrine of evolution reminds us that nature does not tolerate any useless parts, and that use is the absolutely necessary condition for the survival and continuance of any person or part of a person. The stomach is no exception to this rule, and it is with a feeling of general anxiety that we find predigested articles of food offered to the public. The very torpor and inactivity of this organ, which must result, will, we fear, have a tendency to gradually evolve this most important organ into a lesser and still more less condition of functional power.

We are quite confident that if anything derogatory to paskola has been said or published, that such has been done unjustly and from unworthy motives, and we say this because of practical experience with this article.



Tobacco and Fatigue.

Moderate smoking, in one accustomed to tobacco, neither increases the amount of work done nor retards the approach of fatigue. On the contrary, it perhaps slightly diminishes muscular power and hastens the onset of fatigue, though these positive effects could not be conclusively demonstrated.—*Harley.*

Contagiousness of Tuberculosis.

The *Archives of Pædiatrics* relates the instance of four infants who died from tuberculosis of the intestine. A careful investigation showed that it was the custom of the nurse to test the heat of the infant's food by placing the spoon between her lips before giving it to the child, and it was further learned that this nurse had tuberculosis. The writer says that by this means the bacilli were transferred from the mouth of the nurse to the alimentary tract of the child.

Diphtheria from a Pet Dog.

Health officer, Dr. A. O. Strout, in reporting cases of diphtheria within his jurisdiction, cites a case which forcibly illustrates how important it is to be extremely careful in adopting measures to prevent the spread of that disease. The doctor says,—

“There were two girls in this family aged 5 and 7 years. The oldest came down with diphtheria, and I at once ordered the younger one sent to another house entirely. She remained there some three weeks until the other girl had recovered. I had the house thoroughly disinfected, and I thought I took every precaution before bringing the other girl home. But I forgot a little dog that was the pet of both girls, and in five days after the girl returned she was taken sick and died. Wherever any contagious disease exists, especially diphtheria, we should not forget the dogs and cats when disinfecting, and if they are inclined to stay in the house shoot them at once.”—*Iowa Health Bulletin.*

Cycling in Paris.

A Paris correspondent writes that there are over 100,000 cyclists in that city; that nearly all the leading physicians ride, next come the lawyers, then the deputies, officers, and even the institute; the family physician prescribes the exercise as the most health-giving ever devised.

Rarity of Tuberculous Meat in Paris.

According to a report recently published, it appears that there is some error in the opinion generally held that beef and milk are important factors in the propagation of tuberculosis. Of 20,000 cows examined in 1893 in the Department of the Seine, but 68 were found to be tuberculous,—a proportion of 3.4 per 1000. This fact is ascribed to the surveillance exercised by the sanitary service and the hygienic measures carried out in the care of the animals.—*La Médecine Moderne*.

What Isolation of Tuberculous Patients has Done.

A hundred years ago a law was enacted in Naples which compelled physicians to report all cases of consumption to the Health Department, under penalty of a fine of 300 ducats. A second offence was punished by ten years' imprisonment. Thus Naples reduced its mortality of consumption 90 per cent. Improved hygienic conditions and isolation of tuberculous patients in England has reduced the mortality 50 per cent. within the last few years. Philadelphia during the last eight years has reduced her mortality from phthisis 20 per cent.

There is every reason to believe that man becomes infected principally from the sputum of phthisical patients. This dries upon the ground, on the floor, linen, and other objects. It becomes powdered, and with the dust-particles the bacilli float about in the air. Thus we see how easy it is for infection to take place.

Sternberg says there can be no doubt that a large proportion of cases of tuberculosis in man results from the respiration, by susceptible individuals, of air containing the bacilli in suspension in a desiccated condition. He also claims that the germs of tuberculosis may remain in the air for many months and retain their vitality until they find a favorable soil for multiplication.

The First Duty of Governments.

“The first duty of a government,” remarked the lieutenant-governor in his address of welcome to the American Public Health Association, “is to assist in keeping public health as good as possible,—and so long as I am lieutenant-governor of the Province of Quebec, the first duty of the Legislature will be in that direction.”

A Disease-Proof Suit of Clothes.

A “disease-proof” suit of clothes, intended to be worn by an operating surgeon, has been patented at Washington. According to the description given to it, it is a complete suit of rubber armor, resembling the dress of an ordinary diver, and is constructed on air-tight principles, so that no disease-germs can enter. There is a small pair of bellows beneath each foot, which, being compressed by the action of walking, blows fresh air in an ingenious manner through the armor. This air enters and is filtered through a germ-proof diaphragm under each of the feet, passing upward and out through another diaphragm arranged at the top of the head.
—*Canadian Practitioner.*

Characteristics of a Good Water.

Pure and *impure*, as applied to water, are such, evidently, relative expressions: it is so difficult to assert positively that a water is pure or impure for lack of a standard of comparison that we are glad to reproduce from the report of the California State Board of Health the following standard suggested by Dr. George M. Kober.

(1) The water should be clear, colorless, and odorless, even when warmed.

(2) A temperature between 45° and 60° is the most agreeable for drinking purposes. A lower temperature, such as the pernicious ice-pitcher supplies, should be avoided.

(3) It should be agreeable to the taste, having a slight pungency from the presence of oxygen or carbonic acid; but the palate cannot be depended upon, as water containing dangerous forms of animal matter is often pleasant enough to the taste.

(4) It should be free from suspended matters, infectious germs, and even the suspicion of the presence of such germs.

(5) It should be free from metallic contamination, and the degree of hardness should be small for cooking and drinking purposes; the extreme limit is set by some as high as 30 parts per 100,000.

The solids remaining on evaporation, according to Waller, should not exceed 50 parts per 100,000 (about 30 grains per gallon). Less than two parts of organic matter is regarded as admissible, but the quality of the organic impurity is much more important than the quantity.

The presence of phosphates in any marked quantity, unless properly accounted for, is indicative of animal pollution, and strongly suggestive of infectious matter. This is also true of chlorine in chlorides, if not accounted for by natural causes; 5 parts per 100,000 (3 grains per gallon) is the extreme limit assigned by some.

The amounts of ammonia and nitrates should be quite small, while nitrites should be entirely absent, although it does not necessarily follow that they are the products of harmful organic matter.

Darkened Sleeping Rooms.

It is claimed by some physicians that the brain cannot rest perfectly unless all light is excluded from the sleeping-room, and whether in going to bed at night or simply lying down for a half-hour's rest in the middle of the day, this precaution should be taken. Where a house has an eastern or southern exposure the rooms will be filled with light long before it is time to get up, and unless some means be taken to prevent, the morning rest will be more or less broken. Especially is this true in the case of little children, and it is well to accustom them from the first to sleep in the dark.

In the absence of outside blinds there is no better way to secure this pleasant twilight so conducive to rest than by the use of inside shades made of the darkest green holland; and they have a great advantage over either inside or outside blinds in that they are so easily adjusted.

They supplement but do not take the place of the ordinary shades, but are set somewhat inside, so as not to interfere with them, and are rolled up and quite out of the way when not in use.

The best grades of this goods are durable, and with reason-

able care will last for years, and from her own experience the writer can recommend them as a most desirable investment.

If the bedroom windows have upper panes of stained glass, in which so many modern houses abound, the green shades should be set so as to cover these also, as an exceedingly unpleasant glare pours down from them, very trying to eyes which are trained to sleep in a darkness as complete as possible.—*Harper's Bazar.*

The Cremation of Garbage.

The *Inventive Age* notes that there are now fifty-five towns and cities in England which destroy their garbage and solid refuse by burning, using an average of about ten furnaces each for that purpose. The combustion of the material is used for the generation of steam, by which the streets are electrically illuminated, and other cities are reported to be considering the propriety of reducing their municipal expenses by this means. The *Livet*, the latest introduced method, is stated to burn on an average 331 pounds of rubbish per hour for each square foot of grate surface, with an evaporation of 4.08 pounds of water for each pound of rubbish consumed. In this way science is showing what profit there is in what has been regarded as waste and filth, to be used in contaminating public drinking-water or getting rid of it in some other way.

Too Poor to be Well.

Poverty and sickness go hand in hand so much of the time that nearly everybody believes them inseparable,—that they must necessarily be in the relation of cause and effect. We would like to get the people to feeling rather that poverty is the result of bad health, instead of bad health being the result of poverty. If that sentiment were firmly implanted in every bosom, and had a practical acknowledgment, there would be fewer wrecked homes and individuals.

It does not cost much to observe the laws of health. A plain, simple, inexpensive diet can be afforded by almost every body. It is not very expensive to be clean. A plain, neat gown, if of material adapted to the season and climate, is more conducive to health than satins and silks, and corsets, and high-heeled shoes.

In this country—in blessed Iowa—none are too poor to buy

soap, and none too simple to be ignorant of its protective influence against sickness. Soap and brushes should be used freely even if the tobacco has to be given up.

Most people, if they are clean, industrious, plain in their food, and free from bad habits, are well. No well person need be so poor as to be dependent upon others.

Our proposition is that cleanliness, abstinence from degrading and impecunious habits, and industry are victorious foes to sickness and poverty.

So let none look upon the rich, who in person and family are well, and feel that because they are not rich they cannot be well.

It is just as rare to find poverty and ill-health associated together as it is to find cleanliness and poverty so associated.

Let not the poor despair and imagine they are sick because they are poor, but that they are sick because they are dirty, and poor because they are sick, and their physical and mental and moral energies are impaired.

There is a rainbow in the cloud for all who are poverty-stricken and sick. It is *soap*,—and all that soap stands for.—*Iowa Health Bulletin*.

The Care we take in Breeding Horses and Dogs.

We go to any expense and care to breed healthy full-blooded horses. Stables of palatial pretensions are erected for them in the most salubrious climates. A veterinary surgeon visits them frequently, inspects their food, and directs their exercise and the hygienic conditions under which they live. Dogs are similarly cared for and tended; and yet, sad to relate, no such care, attention, or prophylaxis is attempted in regard to the human race. It is, indeed, a sad commentary on the value we place on one of God's noblest creation, when we have to chronicle the fact that more care and more thousands of dollars are expended on a horse or a dog than on the life of a human being. The horse and the dog are carefully mated and cared for during gestation, whilst man in any condition is permitted to marry whom he pleases, although loved ones are carried to the grave by the hundreds. And the soil for scrofula and tuberculosis is prepared for generations yet unborn by such unwise, unjust, and unjustifiable marriages.

Artificial Nauheim Baths.

A. Leventin has for several years made use of cold carbonated baths after hot baths, mud-baths, or massage, in the treatment of rheumatism or arthritis. For a weak Nauheim bath he uses 250 grammes ($8\frac{1}{3}$ ounces) bicarbonate of soda; Kreuznach water, $\frac{2}{3}$ litre (1 quart); hydrochloric acid, 300 grammes ($9\frac{1}{2}$ fluid-ounces). For a bath of medium strength, 400 grammes ($12\frac{3}{4}$ ounces) bicarbonate of soda; water from Kreuznach, 1 litre (1 quart); hydrochloric acid, 500 grammes (1 pint). For a strong bath, 500 grammes (1 pound) bicarbonate of soda; Kreuznach water, 1.5 litres ($1\frac{1}{2}$ quarts); and hydrochloric acid, 700 grammes ($22\frac{1}{2}$ fluidounces).—*Hygiea*.

Longevity and Life Insurance.

At the yearly meeting of a Life Assurance Association, recently held in England, several startling facts were incidentally brought to light in a discussion which occurred. Of these facts the most important are the following :

- (1) There is a marked increase of kidney-disease.
- (2) The expectation of life in males over twenty appears to be diminishing, the death-rate from diseases of the urinary organs tending steadily to an increase.
- (3) There is a steady increase in the mortality among the class to which candidates for life insurance chiefly belong,—viz., the so called better classes.

These observations afford matter for serious consideration.

Heredity.

It seems hard that when a man does wrong his children should be put under an almost irresistible inclination to do wrong; it seems hard that when a man drinks spirituous liquors his children and his children's children should find themselves urged by a burning thirst, which they can scarcely withstand, towards indulgence in intoxicating drinks; it seems hard that diseases should be transmitted, and that because a man has violated the laws of health his children should be sickly and short-lived,—these things look hard so long as we look at them only on one side; but what a power of restraint economy has when every man feels, "I stand not for myself alone, but for the whole line of my posterity, to the third and fourth generations."—*Beecher*.



**A Pronounced Opinion from the Veteran Editor of
the Memphis Medical Monthly.**

October 22, 1894.

GENTLEMEN: Your kind favor of 20th inst. received this evening, after my return from Ship Island, Miss.

The "Antikamnia and Codeine Tablets," which reached me also, were exactly what I wanted. Having been exposed to the Gulf breeze all day, I returned suffering intensely with gastralgia and pleurodynia. One of the tablets gave me relief, and I have since had my supper and feel quite comfortable.

In the fact that your preparation, antikamnia, has no depressing effect upon the cardiac force, you have much for congratulation, and the field for its usefulness may be viewed like the horizon,—the nearer you approach it the wider its recognized extent.

Yours cordially,

TO THE ANTIKAMNIA CHEMICAL CO.

F. L. SIM, M.D.

A Gentle Laxative.

THE profession as well as the public have long appreciated the importance of a simple laxative. Time out of mind remedies have been in everyday use in the home for this purpose, but it remained for the California Fig Syrup Company to furnish a pleasant, potent, perfect laxative, safe to be used in the home of members of the family of all ages.

The company has frankly informed the medical profession that the chief laxative ingredient of their compound is senna, so treated that all tendency on its part to gripe and produce irritation and subsequent debility in the bowels is removed. The chief feature claimed by the company for their Syrup of Figs is the fact that the component parts of the product have all disagreeable taste disguised by a mingling of aromatic carminatives in such a way as to make it really pleasant to the taste; and these aromatics at the same time overcome all disposition upon the part of the drug to pain and discomfort; and carry as it does the stamp of the company's responsibility, it is always reliable and uniform in its effects. The wonderful success of this gentle family laxative is largely owing to its universal use by the medical profession.—*Medical Mirror*.

INDEX.

A

| | |
|--|-----|
| Abiotic region | 548 |
| Absorption of odors by milk . . | 484 |
| Action of electricity on microbes | 31 |
| Adulterated beer | 97 |
| Adulteration of beer | 420 |
| Age of maternity | 332 |
| to marry physically consid- ered | 592 |
| Aggregate ascendancy, individ- ual degeneracy | 396 |
| Alcohol and brain work | 20 |
| stimulants | 542 |
| American fear of drafts | 25 |
| Public Health Association . | 537 |
| Sanitary Association | 270 |
| Anticholera inoculation | 546 |
| Apparatus, modern disinfecting | 305 |
| Are American women deterio- rating | 267 |
| Argument for the use of whole wheat flour | 385 |
| Artificial air-supply for hospitals | 334 |
| coffee | 412 |
| ice, bacteria in | 335 |
| Nauheim baths | 739 |
| Athletics and life insurance . . | 416 |
| use and abuse of | 314 |
| Atmosphere, chemical history of | 97 |

B

| | |
|---|-----|
| Babies, primitive comfort for . | 673 |
| Bacilli on playing cards | 541 |
| Bacteria in the soil at different depths | 506 |
| Bacteriological craze | 102 |
| Bagdad, letter from | 647 |
| Bank-notes and disease | 337 |
| Bardet, Graham bread | 608 |

| | |
|---|-----|
| Barnes, natural sanitation . . . | 519 |
| Bath, simple hot-air | 332 |
| Turkish | 105 |
| Bathing in Alaska | 542 |
| Beneficial consequences of ab- sence of cow's milk in Japan . | 552 |
| Bicycle-riding for women . . . | 528 |
| Bietler, the ounce of prevention | 193 |
| Billings, hygiene in university education | 575 |
| Birth-rate of France, to increase the | 672 |
| Boards of Health and personal rights | 234 |
| represented, list of | 339 |
| Boiled milk | 93 |
| Boils, prevention of | 675 |
| Boroughs without health boards are public nuisances | 325 |
| Brain work and vitality | 489 |
| Braman, State and municipal control of infectious and con- tagious diseases | 61 |
| Brinton, hygienic observances among savage tribes | 444 |
| Byers, race factor and disease . | 392 |

C

| | |
|--|-----|
| Canned vegetables | 268 |
| Care of the tooth-brush | 485 |
| we take in breeding horses and dogs | 738 |
| Cause and effect | 425 |
| Cemeteries, gold mines in . . . | 679 |
| Characteristics of a good water . | 735 |
| Cheap tooth-brushes, cheap . . | 6 |
| Children of drinkers | 487 |
| neglected | 413 |
| physical culture for | 25 |

| | | | |
|--|-----|--|----------|
| Cholera, curiosities of | 672 | Cremation in France | 482 |
| Christian burial, a plea for | 559 | practice of | 16 |
| Church of England Sanitary Association | 95 | Curiosities of cholera | 672 |
| City Boards of Health no inherent power over city government | 93 | Cycling in Paris | 734 |
| Cleaning wells | 326 | | |
| Cleanliness | 335 | D | |
| Clean streets in Rome | 405 | Dairies, inspection and regulation of | 70 |
| Clergy and public health | 620 | Dampness as a cause of disease | 540 |
| Climate and health | 684 | Dangers of the barber-shop | 541 |
| of Southeastern Florida | 488 | Darkened sleeping rooms | 736 |
| Closets in railway carriages | 421 | Davies, sewage disposal | 7 |
| Coffee as a prophylactic in contagious diseases | 334 | Davis, sins of omission and commission in our common schools | 175 |
| Cook, diphtheria in a child transmitted from a chicken | 514 | Davisson, sanitation of dwellings, public buildings, and thoroughfares | 695 |
| perfect fatherhood | 644 | Death as it is | 493 |
| Commercial disinfectants | 400 | from gluttony | 446 |
| Common sense | 616 | following a box on the ear | 483 |
| Communicable disease, prevention of | 495 | of Dr. John Rauch | 299 |
| Comparative mortality of man and woman | 416 | Death-rate of large towns | 681 |
| Conn, sanitary condition of Mexico | 447 | old age and | 643 |
| Consanguinity in marriage | 342 | Depopulation, interesting theory of | 674 |
| Constipation | 418 | Derant, mechanical device for artificial respiration | 85 |
| and catarrh of the stomach | 409 | Detect tainted meat | 24 |
| result of | 411 | Diet for adults, milk as a | 517 |
| Consumption, prevention of | 258 | Diphtheria from a pet dog | 733 |
| Contagion in cholera | 486 | Disease, bank-notes and | 337 |
| Contagious sore-throat | 410 | carried by flies | 413 |
| diseases, extinction of | 256 | from the lower animals | 401 |
| coffee as a prophylactic in | 334 | germs in the mud of a well | 412 |
| Contagiousness of consumption, official declaration of | 103 | prevention of | 1 |
| and tuberculosis | 733 | race factor in | 392 |
| Contentment | 479 | self limited | 400 |
| Convalescence from scarlet fever | 483 | Disease-proof suit of clothes | 735 |
| Corruption, fermentation symbolic of | 334 | Disinfection of cabs | 417 |
| Corset-wearing | 92 | commercial | 400 |
| Cows and consumption | 33 | household | 398 |
| Cremation | 543 | Do animals commit suicide | 406 |
| of garbage | 737 | Domestic animals, disease from | 339 |
| | | Don't filter the water | 605 |
| | | Doty, vaccination | 246 |
| | | Dr. John Rauch, death of | 299, 343 |
| | | Dress sensibly | 32 |
| | | Drinkers, children of | 487 |

| | |
|---|---------|
| Drinking water, typhoid fever and | 390 |
| Dudly, Local Sanitary Associations an aid to the Local Boards of Health | 190 |
| Dust-diseases and their prevention | 553 |
| Dust, surgical meaning of | 416 |
| Duty of parents to children to our neighbors | 424 670 |
| Dwellings, public buildings, and thoroughfares, sanitation of | 695 |

E

| | |
|--|-----|
| Earache | 485 |
| Early rising | 676 |
| Eat slowly | 408 |
| Eating raw beef | 419 |
| Ebner, sun-lighted homes | 82 |
| Eczema of nickel-platers | 539 |
| Effect of climate on the development of children | 683 |
| Effects of smoking on muscular work | 677 |
| weather on scientific work | 541 |
| Egbert's reply to Jackson | 107 |
| Eisner, portable hospitals for use in the field and in epidemics | 687 |
| Elderly people, exercise for | 29 |
| Ellis, imperfect development a direct result of improper food | 47 |
| Epitaph, seasonable | 332 |
| Essentials in a healthful home | 549 |
| Exercise for elderly people | 29 |
| Explanation of our rapid living | 480 |

F

| | |
|---|-----|
| Facts bearing on the causation of typhoid fever | 408 |
| Fatal effects of sewage | 411 |
| Fatherhood, perfect | 644 |
| Fatigue on digestion, influence of | 411 |
| Fecundity, rewards for | 574 |
| Feminine folly and professional wealth | 728 |

| | |
|--|-----|
| Fermentation symbolic of corruption | 334 |
| Filter water upward | 341 |
| First duty of governments | 725 |
| Flick, the funeral director as a factor in prevention of disease | 379 |
| Flies and the transmission of disease | 482 |
| Foe to health and life | 618 |
| Fondling pet animals, danger in | 36 |
| Food-adulteration, some forms of | 10 |
| in the future | 487 |
| Foot-ball, little incidents of | 103 |
| Ford, management of contagious and infectious diseases by local boards of health | 131 |
| modern disinfecting apparatus | 303 |
| Frary, whole wheat flour, use of | 385 |
| Freckles and the red parasol | 670 |
| French schools, sanitary precautions at | 23 |
| Fruit-eating to cure all ills | 677 |
| Future, food in the | 487 |

G

| | |
|--|-----|
| Garbage disposal | 654 |
| Gates, query about furnace-heated air | 720 |
| Germicide, soap as a | 673 |
| Germs as friends of humanity | 336 |
| in ice | 336 |
| Get vaccinated | 407 |
| Gibon, sanitary motes and beams | 49 |
| Give the children your companionship | 22 |
| Gladstone as an exponent of common sense | 407 |
| Gold-mines in cemeteries | 679 |
| Good example from France | 419 |
| Governor Pattison's address | 219 |
| Grayson, coffee: its uses medicinally and otherwise | 652 |
| Grier, restriction and prevention of dangerous communicable diseases | 239 |

| H | | Hygiene, of occupations | 31 |
|--|------------|--|-----|
| Haas, burns and their treatment | 710 | triumphs of | 29 |
| Habit | 341 | I | |
| Hair, loss of | 540 | Ice in asthma | 513 |
| Hale, hygiene of writing | 721 | Illuminating gas, unhealthful- ness of | 77 |
| Hamburg, water-supply of | 98 | Immunity from a second attack of contagious disease | 422 |
| Hart on tea | 613 | Improved footwear for soldiers . | 678 |
| Harvey, milk as a diet for adults | 517 | Industrial farm for inebriate women | 671 |
| Healing power, music as a | 639 | Inexorable facts of heredity . . | 619 |
| Health a duty | 34 | Infant feeding | 680 |
| Health authorities of Pennsyl- vania, by-laws of | 226 | Infectious diseases, period of isolation for | 68 |
| Health in the home | 27 | Influence of fatigue on digestion of habitation in the propa- gation of tuberculosis . . | 95 |
| of Boston and Philadelphia . | 526 | of mode of life on stature . | 98 |
| of London | 544 | Interesting theory of depopula- tion | 674 |
| bureau, a national | 395 | International Sanitary Conven- tion | 335 |
| officer and physician, com- municable diseases from the stand-point of a | 239 | Irwell, unsuspected dangers to health | 47 |
| sneezing and | 240 | Italy, health of | 35 |
| service, model reforms of | 147 | J | |
| unsuspected danger to | 472 | Jackson, Egbert's reply to . . . | 107 |
| Healthful home, essentials to . | 549 | Japan's Jinrikisha, runners . . . | 336 |
| Healthfulness of Minneapolis and St. Paul | 675 | K | |
| Heart-disease, geography of | 94 | King, cremation as a means of practical sanitary reform . . . | 567 |
| Heredity | 739 | Kumyss poisoning | 605 |
| inexorable facts of | 23 | Kynett, effect upon the nursing of the mother's diet | 640 |
| Hiccough, simple cure for | 669 | L | |
| High buildings in New York . . | 412 | Laws of health | 268 |
| Hospitals, artificial air-supply for | 334 | Laziness | 406 |
| portable | 687 | Lee, how the State Board of Health and Local Board may be mutually helpful | 210 |
| Hotel hygiene | 491 | Leonhardt, unhealthfulness of illuminating gas | 77 |
| Hough, inspection and regula- tion of dairies | 70 | Lewis, our rich men | 377 |
| House heredity | 610 | Life, possible duration of | 402 |
| Household disinfection | 398 | | |
| How animals practise medicine to live long | 409 656 | | |
| Human body, valuable constit- uent of the | 333 | | |
| Humanity, germs as friends of . | 336 | | |
| Hurty, diphtheria from a book . | 323 | | |
| Hygiene aspect of nervous pros- tration | 534 | | |
| and cosmetics | 547 | | |
| in play | 529 | | |

| | |
|--|-----|
| Parker, dreams | 464 |
| maternal indifference | 255 |
| Paskola | 731 |
| Peck, bread-making | 83 |
| Penetrability of the skin by micro- cubes | 266 |
| Pensioning sanitarians | 405 |
| Pet animals, danger in fondling | 36 |
| Physical culture | 24 |
| Physician to the household of the Ameer | 540 |
| Placarding infected houses | 730 |
| Plague bacillus | 618 |
| Poisoning, mushroom- | 91 |
| kumyss | 605 |
| Pope tries hydrotherapy | 544 |
| Porteous, prevention of disease | 1 |
| Possible duration of life | 402 |
| Postal transmission of small-pox | 672 |
| Practical education | 88 |
| sanitary reform, cremation as a means of | 567 |
| Precautions against small-pox | 599 |
| Prevention of boils | 675 |
| of consumption | 258 |
| of preventable diseases | 143 |
| disease, the funeral director as a factor in | 579 |
| Preventive inoculation for chol- era in India | 483 |
| Primitive comfort for babies | 673 |
| Prize for an essay on tuberculosis | 533 |
| Probst, the physician as a sani- tarian | 374 |
| Propagation of tuberculosis, in- fluence of habitation on | 95 |
| Proper food question, aspects of | 623 |
| Property destroyed by health officers, reimbursement for | 147 |
| Proposed classification of infec- tious diseases | 417 |
| Pure water, what constitutes | 545 |
| Purification of water | 539 |

Q

| | |
|---|-----|
| Quacks | 675 |
| Query about milk | 478 |
| Question of disinfection of apart- ments | 682 |

R

| | |
|---|-----|
| Rapid eating | 268 |
| living, explanation of | 480 |
| Rarity of tuberculous meat in Paris | 734 |
| Raw eggs | 420 |
| Regulations for the storage and removal of garbage | 522 |
| Remondno, remarkable centen- arianism | 504 |
| Removal of garbage | 423 |
| Report of the section on hygiene of the British Medical Associa- tion | 725 |
| Result of constipation | 411 |
| Review of reviews | 479 |
| Reynolds, epidemic of small- pox in Chicago | 507 |
| Rheumatism in past ages | 414 |
| Royal ladies who smoke | 671 |

S

| | |
|---|----------|
| Sangree, hay fever and the White Mountains | 702 |
| Sanitarian, the physician as a | 374 |
| Sanitary chemist | 425 |
| conference, the international | 335 |
| house-drainage | 451 |
| insurance | 673 |
| precautions at French schools | 23 |
| sermon | 415 |
| Sanitation, national | 519 |
| Savage tribes, hygienic observ- ances among | 414 |
| Scarlet fever | 483 |
| Scavenger work | 100 |
| School boards and vaccination | 607 |
| hygiene | 367, 433 |
| Sea-air and mountain-air | 488 |
| skin-diseases | 617 |
| Seasonable epitaph | 332 |
| Self-limited diseases | 400 |
| Seventh State Sanitary Associa- tion, discussion on papers | 271 |
| Sewage, fatal effects of | 411 |
| irrigation | 484 |
| Simple cure for hiccough | 669 |
| hot-air bath | 332 |
| Sit erect | 551 |

| | | | |
|---|----------|--|-----|
| Sleep, proper hours of | 34 | Twenty-first Annual Meeting of the American Public Health Association, in conjunction with the Congress of Public Health | 39 |
| Small-pox in Chicago, epidemic of | 507 | Typhoid bacilli conveyed through the air | 548 |
| postal-transmission of | 672 | fever and vaccination | 670 |
| precautions against | 599 | germs carried on the finger | 679 |
| Sneezing and health | 340 | in Paris | 670 |
| Sore throat, contagious | 410 | | |
| Sound sense | 574 | U | |
| Soup as a germicide | 673 | Ullman, dangers to health | 606 |
| Special exercise to correct and prevent constipation | 682 | United States postal laws in re- spect to infectious diseases | 550 |
| meeting of the Michigan State Board of Health | 426 | University education, hygiene in | 575 |
| State Sanitary Convention | 113, 175 | Use of the bicycle | 722 |
| report of | 238 | | |
| at Harrisburg | 88 | V | |
| Sterilization of doctors | 626 | Vaccination | 246 |
| Stolen grafts | 546 | matinées in Paris | 333 |
| Strongest man at Harvard | 409 | Valetudinarian of the eighteenth century | 386 |
| Suburban life and heart-disease | 415 | Value of change | 410 |
| Sugar as a food | 485 | Vaughan, typhoid fever and drinking water | 390 |
| Sullivan, the prevention of com- municable diseases | 495 | Veale, powers and possibilities of local boards of health | 168 |
| Sultan of Turkey, a sanitarian | 407 | Vitality of meat-eaters | 676 |
| Sunberg, a letter from Bagdad | 647 | | |
| Surgical meaning of dust | 410 | W | |
| Survival of the fittest | 414 | Waists and marriage | 659 |
| Swimming as an exercise | 403 | Walking | 422 |
| Symmetrical development | 418 | Washing underclothing in the Russian army | 471 |
| | | Water, don't filter | 665 |
| T | | potable | 669 |
| Taking precautions | 671 | purification of | 539 |
| Tea poisoning | 680 | Weir, borderlands and crank- dom | 627 |
| lead-poisoning from | 19 | Wells, cleaning | 326 |
| Telephonic dress reform | 483 | Wharton, potable water | 660 |
| Temperaments | 104 | What cases shall we send to Cali- fornia | 494 |
| Tobacco and fatigue | 733 | isolation of tuberculous pa- tients has done | 734 |
| To escape vaccination | 332 | | |
| Too much method | 545 | | |
| poor to be well | 737 | | |
| Tragedy, a medical | 91 | | |
| Transmission of cholera by flies | 94 | | |
| Treatment of obesity | 490 | | |
| Triumphs of hygiene | 29 | | |
| Tuberculosis in cattle | 342 | | |
| Turkish bath | 105 | | |
| Turnbull, bathing, swimming, and diving as cause of aural disease | 634 | | |

| | | | |
|---|-----|---|-----|
| Wheeler, sugar diet and muscular work | 607 | Wood, aspects of the proper food question | 623 |
| White, pepper and mustard . . | 79 | Word for the sleepless | 678 |
| Why is it? | 666 | Work | 405 |
| a cemetery is so-called . . | 680 | Wyman, extinction of contagious diseases | 256 |
| Wilder, ocular hygiene | 455 | | |
| Williams, lead-poisoning from tea | 19 | | |
| dental notes | 86 | | |
| Women, bicycle-riding for . . . | 528 | | |

Y

| | |
|-----------------------------------|-----|
| Yellow fever, looking out for . . | 401 |
|-----------------------------------|-----|

